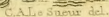




ENTOMOLOGY.





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377

AMERICAN ENTOMOLOGY,

OR

Descriptions

OF THE

INSECTS OF NORTH AMERICA.

ILLUSTRATED BY

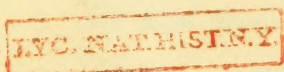
COLOURED FIGURES

FROM

ORIGINAL DRAWINGS EXECUTED FROM NATURE.

BY THOMAS SAY,

Curator of the American Philosophical Society, and of the Academy of Natural Sciences of Philadelphia; Correspondent of the Philomathique Society of Paris; and Professor of Natural History in the University of Pennsylvania, and of Zoology in the Philadelphia Museum.



" Each moss,
Each shell, each crawling insect, holds a rank
Important in the plan of Him who fram'd
This scale of beings."

STILLINGFLEET.

Philadelphia Museum:

PUBLISHED BY SAMUEL AUGUSTUS MITCHELL.

FOR SALE BY ANTHONY FINLEY, CORNER OF FOURTH AND CHESNUT ST.

William Brown, Printer.

1824.

AM

AMERICAN

ENTOMOLOGICAL

PROCEEDINGS

WILLIAM M. ALLEN

OF THE UNIVERSITY OF CALIFORNIA

AND OF THE ENTOMOLOGICAL SOCIETY OF AMERICA

EDITED BY

WILLIAM M. ALLEN

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TO

WILLIAM MACLURE,

PRESIDENT OF THE ACADEMY OF NATURAL SCIENCES OF
PHILADELPHIA, AND OF THE AMERICAN
GEOLOGICAL SOCIETY,

MEMBER OF THE AMERICAN PHILOSOPHICAL SOCIETY,
&c. &c.

Distinguished as a successful cultivator, and
munificent patron, of the Natural Sciences, this
Work is respectfully inscribed,

By his much obliged,

and most obedient servant,

THE AUTHOR.

“As there is no part of nature too mean for the Divine Presence; so there is no kind of subject, having its foundation in nature, that is below the dignity of a philosophical inquiry.”

HARRIS.

Preface.

THE author's design, in the present work, is to exemplify the genera and species of the insects of the United States, by means of coloured engravings. He enters upon the task without any expectation of pecuniary remuneration, and fully aware of the many obstacles by which he must inevitably be opposed.

The graphic execution of the work will exhibit the present state of the arts in this country, as applied to this particular department of natural science, as no attention will be wanting, in this respect, to render the work worthy of the encouragement of the few who have devoted a portion of their attention to animated nature.

To such persons, as well as to those whose information is sufficiently comprehensive to en-

able them duly to appreciate the various departments of human knowledge, this book is more especially addressed; and the author would happily profit by their friendly co-operation in the correction of any errors that may appear, in the enunciation of new facts in the manners and economy of insects, or in the addition of species and localities.

It is not possible, in the present state of our collections, to publish all the species in regular systematic succession; and the Entomologist will therefore observe, that although the specimens are somewhat indiscriminately described and figured, yet care has been taken that species of different genera be not represented in the same plate. The pages are not numbered, and the enumeration of the plates, which is on the inferior margin of the impression, is referred to beneath the text. This arrangement will admit of the work being bound up, when completed, agreeably to systematic order in the succession

of genera, without any apparent confusion of numerals.

In order that the descriptions may be understood by those who are not conversant with the science, we subjoin an explanation of the technical terms used in Entomology, illustrated by elementary plates.

Six plates of the present volume, together with their accompanying text, were printed off in the year 1817, but as they were never properly published, it has been thought advisable to include them in the present work.

With these preliminary notices, the first volume of the American Entomology is submitted to the patrons of science; and whatever may be its merits or its defects, we must observe, that it is the first attempt of its kind in this country. It is an enterprise that may be compared to that of a pioneer or early settler in a strange land, whose office it is to become acquainted with the various productions exhibited to his view, in

order to select such as may be beneficial, either as regards his physical gratification, or his moral improvement, and in order to counteract the effects of others that may have a tendency to limit his prosperity. From the novelty of the surrounding objects, or the imperfection of his implements, it is vain to suppose that his selection would be unerring, or his system of culture invariably judicious. But unabating industry and zeal remove obstacles that for ever bar the advance of indolence or timidity; and if our utmost exertions can perform only a part of a projected task, they may, at the same time, claim the praise due to the adventurous pioneer, of removing the difficulties in favour of our successors.



LYC. NAT. HIST. NY.



LYTTA.

GENERIC CHARACTER.

Tarsi entire; nails bifid; head not produced into a rostrum; elytra flexible, covering the whole abdomen, linear, semicylindric; wings perfect; maxillæ with two membranaceous laciniae, the external one acute within, subuncinate; antennæ longer than the head and thorax, rectilinear; first joint longest, the second transverse, very short; maxillary palpi larger at tip.

OBSERVATIONS.

To this group of insects belongs the celebrated "Spanish fly," distinguished in the healing art for its vesicating virtue. The species were placed by Linné in his genus *MELOE*; Geoffroy, Degeer, Olivier, Lamarck, Latreille, and Leach, distinguished them by the name of *CANTHARIS*; and Fabricius, Marsham, and Dejean, apply the designation I have adopted.

The larvæ live in the earth, and the perfect insect is often gregarious, feeding on leaves.

It is highly probable that all, or nearly all, of the North American species, are endowed with the same properties that have so long rendered the *L. vesicatoria* almost indispensable to the practice of medicine ; and it is certain that a sufficient quantity may be collected in the United States to supply the demand of the shops, to the complete exclusion of the foreign insect.

LYTTA NUTTALLI.

SPECIFIC CHARACTER.

Bright green, varied with golden ; elytra golden purple ; feet black, thighs blue, trochanters armed with a spine.

SYNONYM.

L. NUTTALLI. *Nobis. Jour. Acad. Nat. Sciences*, vol. iii. p. 300.

DESCRIPTION.

Body glabrous : *head* deep greenish, varied

PLATE III.

with golden; *front* punctured, subimpressed, and with a small rufous spot; *antennæ* robust, surpassing the base of the thorax, black, opaque; joints turbinate, approaching to moniliform, the margin of the tip rounded; second joint two thirds the length of the third; terminal joints largest near the middle, and rapidly attenuated to an acute tip: *eyes* oblong-oval, emarginate: *palpi* black: *clypeus* and *labrum* obscure: *thorax* golden-green, polished, with unequal, minute, sparse punctures; a longitudinal, dorsal, impressed line, and a transverse basal one; base bluish, anterior angles prominent: *scutel* blue, obtuse behind: *elytra* red, or golden-purple, somewhat rugose: two indistinct elevated lines on the disk, and a submarginal one: *beneath* green, polished: *feet* black; *thighs* beneath blue or purplish; *trochanters* armed with a conic spine near the inner base, obsolete or wanting in the female.

OBSERVATIONS.

This noble species, which in magnitude and splendour surpasses the far-famed *vesicatoria*, has, I understand, been labelled in a British cabinet with the name which I have here adopted,

in honour of Mr. Thomas Nuttall, who discovered it.

Although this insect certainly belongs to this genus, yet the proportional length of the second and third joints of the antennæ, is somewhat similar to that of the genus *ZONITIS*, as defined by Latreille in the *Regne Animal*. In common with several other American species, the antennæ increase a little in thickness towards the tip, but are much shorter than in *ZONITIS*. These characters, combined with the form of the terminal joint, seem to prove a close alliance with the genus *MYLABRIS*, but the antennæ are not arquated at tip, and are of a more considerable length; the habit also differs, the form of the body being more elongated. The species, then, possessing the form of antennæ above noted, seem to have the habit of *LYTTA*, combined with a form of antennæ allied to that of *MYLABRIS*.

They cannot be referred to *ZONITIS*, as the palpi are not filiform, and the habit does not agree.

The *nuttallii* seems to be limited to the western region. In company with Major Long, I observed it, for the first time, near the base of the Rocky Mountains. A very numerous flock had there taken possession of the few diminutive

bushes that occurred within the space of a hundred yards, every spray of which was burdened with their numbers. After passing this limited district, not an individual was seen during the remainder of our journey. On the recent expedition of the same officer to the river St. Peter, I obtained but a single specimen, which was found one evening at an encampment in the North West Territory.

The upper left figure, natural size.

LYTTA ALBIDA.

SPECIFIC CHARACTER.

Black, covered with dense whitish hair.

SYNONYM.

L. ALBIDA. *Nobis. Jour. Acad. Nat. Sciences,*
vol. iii. p. 305.

PLATE III.

DESCRIPTION.

Body black, entirely covered by dense, short, prostrate greenish or yellowish-white hairs: *head* with a longitudinal impressed line: *antennæ* subglabrous; first and second joints rufous, the latter nearly equal in length to the third joint: *clypeus*, *labrum*, and *palpi* pale rufous: *tarsi* black.

OBSERVATIONS.

Another remarkably fine species, which I discovered within about a hundred miles of the Rocky Mountains, during the progress of Major Long's expedition over that vast desert. It appeared to be feeding upon the scanty grass, in a situation from which the eye could not rest upon a tree, or even a humble shrub, throughout the entire range of its vision, to interrupt the uniformity of a far outspreading, gently undulated surface, that, like the ocean, presented an equal horizon in every direction.

The upper right figure, natural size.

LYTTA MACULATA.

SPECIFIC CHARACTER.

Black, covered with cinereous hair ; elytra spotted with black.

SYNONYM.

L. MACULATA. *Nobis. Jour. Acad. Nat. Sciences*, vol. iii. p. 398.

DESCRIPTION.

Body black, invested with cinereous, prostrate hairs: *head* with an impressed, longitudinal line: *antennæ*, joints cylindrical, and, with the *labrum* and *palpi*, glabrous: *maxillary palpi* much dilated at tip; *eyes* elongated, retuse behind the antennæ, and behind the insertion of the maxillæ: *thorax* subquadrate, narrower than the head, a longitudinal impressed line, and a transverse basal one: *elytra* with numerous, orbicular, black dots, irregularly placed, sometimes confluent, and are the effect of the absence in those

parts of the cinereous hair: *tarsi*, tips of the *tibia* and *thighs*, glabrous.

OBSERVATIONS.

This insect is much smaller than the preceding ones, and the spots of the elytra distinguish it in a remarkable manner. Numerous specimens were brought by Mr. Nuttall from Missouri.

The lower left figure; the line represents the natural length

LYTTA SPHÆRICOLLIS.

SPECIFIC CHARACTER.

Dark green, tinged with brassy; thorax rounded, convex.

SYNONYM.

L. SPHÆRICOLLIS. *Nobis. Jour. Acad. Nat. Sciences*, vol. iii. p. 299.

PLATE III.

DESCRIPTION.

Body glabrous, blackish-green, slightly tinged with brassy: *head* punctured: *antennæ* robust, black, hardly attaining the base of the thorax; joints short, conic, acute at the edge of the tip; second joint rufous, subglobular: *eyes* oval, not elongated: *labrum* and *palpi* blackish: *thorax* subglobular, punctured, punctures sparse, not profound: *elytra* green, slightly tinged with olivaceous and brassy, somewhat rugose; two, rarely three, obsolete, longitudinal lines on the disk, and another near the external margin: *beneath* blackish-green.

Variety, *a.* Body green, destitute of the brassy tinge.

Variety, *b.* Head and thorax black; *elytra* bluish.

OBSERVATIONS.

This species is less robust than the preceding, and may be readily distinguished from others by the rounded thorax and very short antennæ, the remaining characters of which latter agree with

those of the *nuttalli*. Many specimens were brought from Missouri by Mr. Nuttall.

In a future volume of this work, we propose to give some account of the American species of this genus, as related to medicine.

The lower right figure ; the line shows the natural length.

PLATE III.



LUC. NAT. HIST. N. Y.



SCARABÆUS.

GENERIC CHARACTER.

Antennæ ten-jointed, the club composed of oblong-oval lamellæ, which have an almost common insertion; body ovoid, convex; mandibles with their external edge crenulated; maxillæ corneous, dentated; labrum entirely concealed; palpi filiform.

OBSERVATIONS.

The genus possessed of the above characters, retains the Linnæan name of SCARABÆUS in the system of Latreille, and corresponds with the genus GEOTRUPES of Fabricius; whilst the genus SCARABÆUS of the latter author, is the same with GEOTRUPES of Latreille. Although, in the small portion of the present work, printed in the year 1817, I adopted the Fabrician designation, yet as Entomologists have generally chosen Latreille's nomenclature in this respect, I have thought it necessary to acquiesce in their decision.

This genus comprehends some of the largest insects of the order COLEOPTERA, and, amongst others, the noble species known by the name of *S. Hercules*, of which the truly absurd story has been related of its clasping a branch of a tree between the corneous projections of the head and thorax, and, by flying round the limb thus included, finally succeeds in separating it from the tree; and that the insect then becoming inebriated with the fluid that exudes from the wound, falls apparently lifeless to the ground.

SCARABÆUS TITYUS. *Linn.*

SPECIFIC CHARACTER.

Thorax three-horned, the lateral ones short, subulate, middle one bearded with yellow hair beneath, projected forwards, and bifid at tip; horn of the head recurved, subemarginate on the back near the tip.

PLATE IV.

SYNONYMS.

SCARAB. TITYUS. *Linn. Syst. Nat.*

Amoenit. Acad. vol. vi. p. 391. ♂

Jablonsky Coleopt. p. 257. pl. 4. fig. 2.

Oliv. Ins. vol. i. p. 9. pl. 10. fig. 31. b. c.

Palisot de Beauv. Ins. p. 137. pl. 1. c.
fig. 4, 5.

LE SCARABÉ' TITYUS. *Ency. Meth. Ins.* pl. 137.
fig. 7. ♂

GEOTRUPES TITYUS. *Fabr. Syst. Eleut.* vol. i.
p. 10.

SCARAB. HERCULES MINOR. *Voet. Coleopt.* p. 24.
pl. 12. fig. 99.

SCARAB. MARIANUS. *Linn.* ♀

*Fabr. in his earlier works; omitted in
his Syst. Eleut*

OBSERVATIONS.

This insect is so extremely rare in Pennsylvania, that the late Rev. F. V. Melsheimer, the parent of Entomology in this country, and a very industrious collector, found but two individuals in eighteen years. An instance has however occurred, in which the appearance of a considerable number of them occasioned no little

surprise in the neighbourhood where they were discovered. A mile or two southward of Philadelphia, and near the river Delaware, an old cherry-tree was blown down by a violent current of wind, and my informant saw the remains of numerous individuals, in and about a cavity of the tree, laid open by the shock of its fall. That there might be no mistake as to the species, he exhibited the thorax of a male he had chosen from the mutilated fragments.

I think it highly probable the *tityus* is more especially a native of the southern states, as my friend, Mr. J. Gilliams, presented me with several specimens in high perfection, collected by himself in Maryland; and from these, the drawings for the annexed plate were made.

The length of the male, exclusive of the horns, is two inches, and the greatest breadth one inch. In colour it resembles the *S. Hercules*, being glaucous with brown spots, or brown with glaucous spots. These spots vary considerably in size, figure, position and number, being sometimes confluent, and exhibiting a clouded appearance. The elytra of one specimen in my collection are entirely chesnut-brown, immaculate, and the larger thoracic horn frequently occurs simple, or undivided at tip, as exhibited

in the figures given by Jablousky and Olivier; to the latter author we are indebted for a knowledge of the specific identity of the *tityus* and *marianus*.

The female is generally somewhat smaller than the male, and unarmed, excepting a small tubercle on the head.

TITYUS, in the heathen mythology, was a gigantic son of Jupiter and Elara, whom Apollo killed for offering violence to his mother Latona.

The upper figure of the plate represents the male, and the lower the female.

PLATE IV.



1



2



3



4



5

NEMOGNATHA.

GENERIC CHARACTER.

Antennæ longer than the thorax, with the first and third joints nearly equal, the second a little shorter, terminal one fusiform, abruptly terminated by a short point; palpi filiform; maxillæ very much elongated, filiform, curved; elytra elongate, linear; tarsi with entire joints.

OBSERVATIONS.

This genus was formed by Illiger for the reception of such species of the Linnæan genus *MELOE*, as are distinguished by the remarkable and striking character of elongated maxillæ. Fabricius included them in his genus *ZONITIS*. The maxillæ of these insects have the closest analogy with the spiral trunk of the *LEPIDOPTERA*, and every point of comparison induces the supposition that this organ is applied to the same uses. The species are found on flowers.

NEMOGNATHA IMMACULATA.

SPECIFIC CHARACTER.

Lemon-yellow, immaculate ; elytra pale yellowish, with scattered punctures ; maxillæ not longer than the thorax, and, with the antennæ and palpi, black.

DESCRIPTION.

Antennæ black, basal joint pale testaceous ; *eyes, maxillæ, palpi, and tips of the tarsi*, black ; *elytra* irregularly punctured, naked, polished.

OBSERVATIONS.

It inhabits the plains of Missouri, and was captured by Mr. Thomas Nuttall, on a species of thistle (*CARDUUS*) ; I have since observed it in some plenty in the same locality. It seems to be allied to the *ZONITIS PALLIDA* of Fabricius, judging by his description of that insect.

The smaller figure of the plate denotes the natural size, and the figures beneath it exhibit magnified representations of some of the oral organs, &c.

Fig. 1. Antenna.

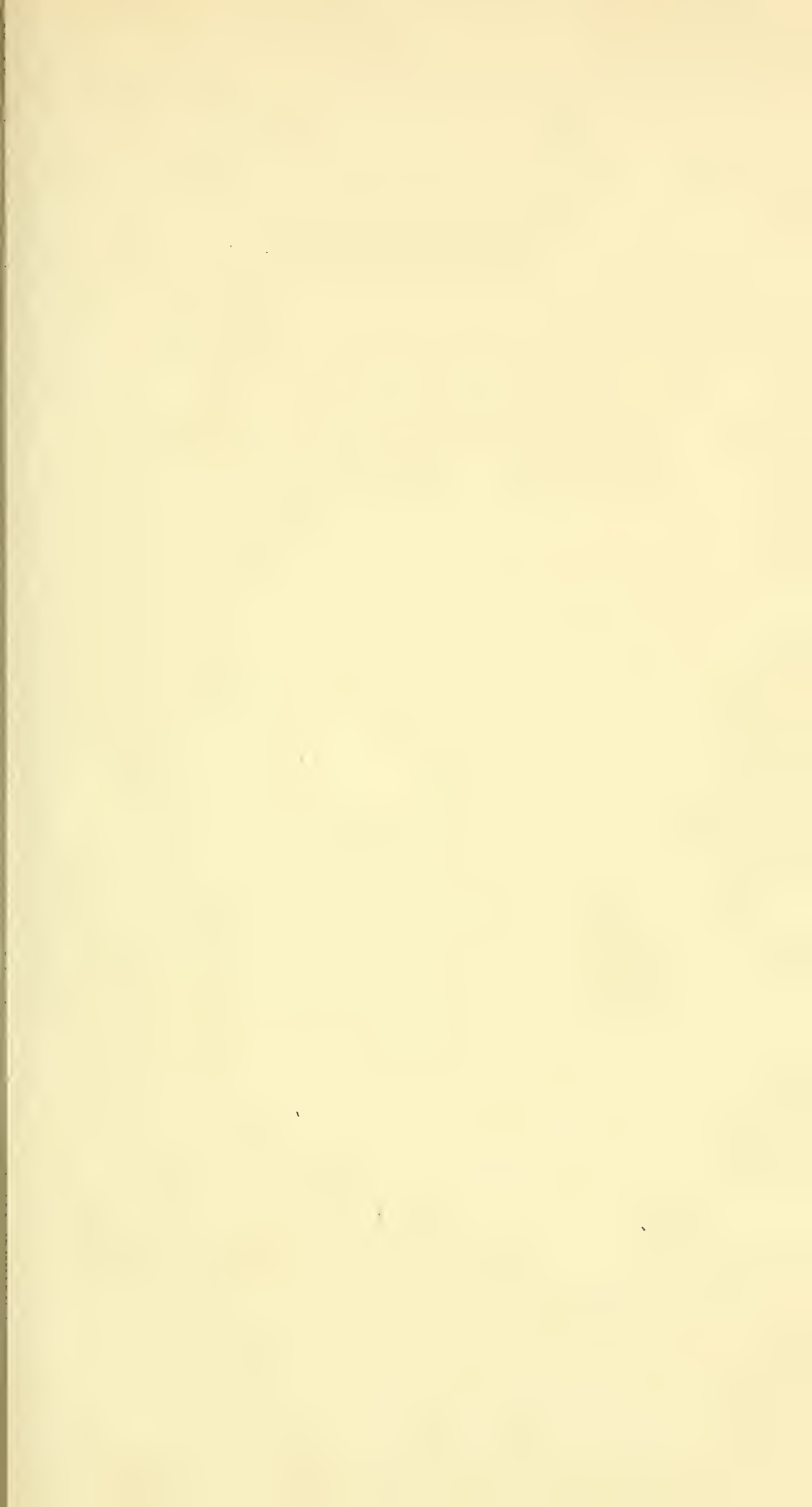
2. Mandible.

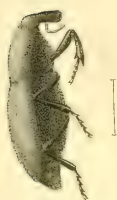
3. Tongue and labium supporting the
labial palpi.

4. Labial palpus.

5. Maxilla with its palpus, verticillate
with short hairs.

PLATE VII.





CALANDRA.

GENERIC CHARACTER.

Body elliptic-oval, above somewhat depressed; eyes immersed, oblong, encircling the head beneath; antennæ geniculated, inserted at the base of the rostrum; rostrum dilated at the insertion of the antennæ; elytra plain, not covering the anus above; anus acutely prominent; tarsi reflected to the inner side of the tibia.

OBSERVATIONS.

Such of the individuals, as were known to Linné, of almost the whole of the vast tribe of insects now distinguished from the other tribes by the name of CURCULIONIDES, were included by that author in his single genus CURCULIO. So extremely numerous were the species, thus combined together, as to offer a very serious inconvenience to Entomologists. They soon perceived that the continual accessions of species, resulting either from the more critical and accurate observations of numerous investigators, or

from the contributions of those who were occupied in the adventurous task of exploring remote and unknown regions, had so far augmented the obstacles already existing, that the hand of reformation became absolutely necessary. Accordingly Olivier, Herbst, Fabricius, Latreille, Germar, Megerle, and other distinguished systematists, undertook to separate the Linnæan genus *CURCULIO* into numerous smaller assemblages, and thus to bring this part of the system into a more intimate alliance with the order observed by nature in the distribution of species.

The labours of these naturalists eventuated in the construction of more than one hundred additional genera, but the characters of many of these genera appear to be too obscure, and of others not sufficiently important to justify their collective adoption. By far the greater portion of them, however, will probably tend to the elucidation of this difficult part of the system, and amongst these may be ranked the genus *CALANDRA* of Clairville, distinguished by obvious and striking traits.

The history of many species of this group is highly interesting and important, and we propose to represent, in a future volume, those that are so destructive to the wheat, rice, and maize.

CALANDRA TREDECIM-PUNCTATA.

SPECIFIC CHARACTER.

Above sanguineous ; five spots on the thorax, four on each elytrum, and scutel, black ; head and all beneath black.

SYNONYMS.

RYNCHOPHORUS TREDECIM-PUNCTATUS. *Herbst*,
vol. vi. p. 10. pl. 60. fig. 5.

CALANDRA CRIBRARIA. *Fabr. Syst. Eleut.* part
2. p. 434.

CURCULIO TREDECIM-PUNCTATUS. *Melsheimer's*
Catalogue, p. 28. No. 597.

DESCRIPTION.

Body punctured, beneath black, with a cinereous shade in a particular light, and with numerous large punctures ; *head* black ; rostrum, dilated portion not longer than broad, but more dilated at tip, and with an impressed longitudinal line ; *thorax* sanguineous, with five black spots,

of which two are orbicular, and placed on each side, and one is central, fusiform, sometimes rounded; *scutel* black; *elytra* sanguineous, with punctured striæ, interstitial lines flat, with dilated punctures; four black spots on each elytrum, placed 1, 2, 1, the latter largest.

Length seven-twentieths of an inch, exclusive of the rostrum.

OBSERVATIONS.

We introduce this familiar insect, and a variety of it, chiefly for the sake of comparison with another species, which has many characters in common with it. A slight inspection of the plate will, however, at once disclose the differences by which we will always be enabled to distinguish them from each other.

The *tredecim-punctata*, which does not appear to be injurious to any useful plant, may be found in considerable numbers on the milk-weed, or wild cotton (*Asclepias syriaca*), which is very common in the neighbourhood of Philadelphia, growing on the banks of streams of water. The insect seems to be a pretty general inhabitant of the United States; I have found it in Missouri, Arkansa, and the North West Territory, as well as in Pennsylvania.

Lower right figure; the line represents the natural size, with a lateral enlarged view of the head.

CALANDRA TREDECIM-PUNCTATA, *Var.*

DESCRIPTION.

Body punctured; beneath black, with a cinereous shade in a particular light, and with numerous large punctures; *head* black; rostrum, dilated portion longer than broad, but more dilated at tip, and with a deeply impressed puncture at its base above: *thorax* sanguineous, with five black spots, of which two are placed on each side, the posterior one larger and generally oblique, and one is central fusiform: *scutel* black: *elytra* sanguineous, with punctured striæ; interstitial lines flat, with dilated punctures; two small marginal spots; a large common transverse spot on the middle, and a common tip consisting of about one-third of the length of the elytra, black.

OBSERVATIONS.

The spots of the elytra appear at first view to be formed and located differently in this from those of the preceding, yet by dilating the two central elytral spots of the preceding insect transversely, and enlarging the posterior spots in a posterior and transverse direction, we shall be able to exhibit an arrangement precisely conformable to that of the present variety.

The spots of the elytra in this variety are subject to some variations; the transverse spot on the middle of the elytra is divided into two on one of my specimens; the posterior common spot is subcordate, being much narrowed behind in another, and in a third is a black spot on each elytrum, insulated from the common terminal spot which is much narrowed.

This insect is a native of Missouri and Arkansas, as well as of the atlantic states.

The lower left figure; the natural size is represented by a line, above which is an enlarged view of the head.

CALANDRA QUINQUE-PUNCTATA.

SPECIFIC CHARACTER.

Black ; thorax sanguineous, with five black spots ; elytra with a sanguineous exterior sub-margin.

DESCRIPTION.

Body punctured, beneath black, with a very slight cinereous reflection in a particular light : *rostrum*, dilated portion longer than broad, but wider at tip, and with a deeply impressed puncture at base above : *thorax* sanguineous, with five black spots, of which two are on each side, the posterior one larger, oblique, and generally confluent along the basal margin with the opposite basal spot, the central spot is dilated and elongated, fusiform : *scutel* black : *elytra* black, with punctured striæ ; interstitial lines flat, punctured, penultimate lateral one and ultimate one at base sanguineous : *thighs* with a dull sanguineous spot on the middle, obsolete on the posterior pair.

Size of the preceding.

PLATE IX.

OBSERVATIONS.

I observed this species to be very abundant on the Southern Sea Islands of Georgia ; many specimens also occurred in East Florida, but I cannot learn that it has ever been taken further north than that state, neither does it seem to inhabit the western region.

The upper right figure ; the natural size is exhibited by a line, above which is an enlarged representation of the head.

CALANDRA COMPRESSIROSTRA.

SPECIFIC CHARACTER.

Castaneous black ; rostrum compressed ; a profound frontal puncture ; thorax with two punctured lines converging to the scutel.

SYNONYM.

CALANDRA COMPRESSIROSTRA. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 319.

PLATE IX.

DESCRIPTION.

Body dark chesnut-brown, passing into blackish: *head* with small distant punctures, larger ones on the base of the rostrum, which decrease in size to the tip; a profoundly impressed large puncture between the eyes: *rostrum* very much compressed, acutely carinate above: *antennæ* at the tip rufous: *thorax* with larger punctures on the side, on the anterior impressed submargin and on two indented lines which originate each side of the middle and converge to the suture: *elytra* with crenate striæ; interstitial lines each with a series of punctures: *tibia* with a very robust obtuse spine and setæ below the interior middle.

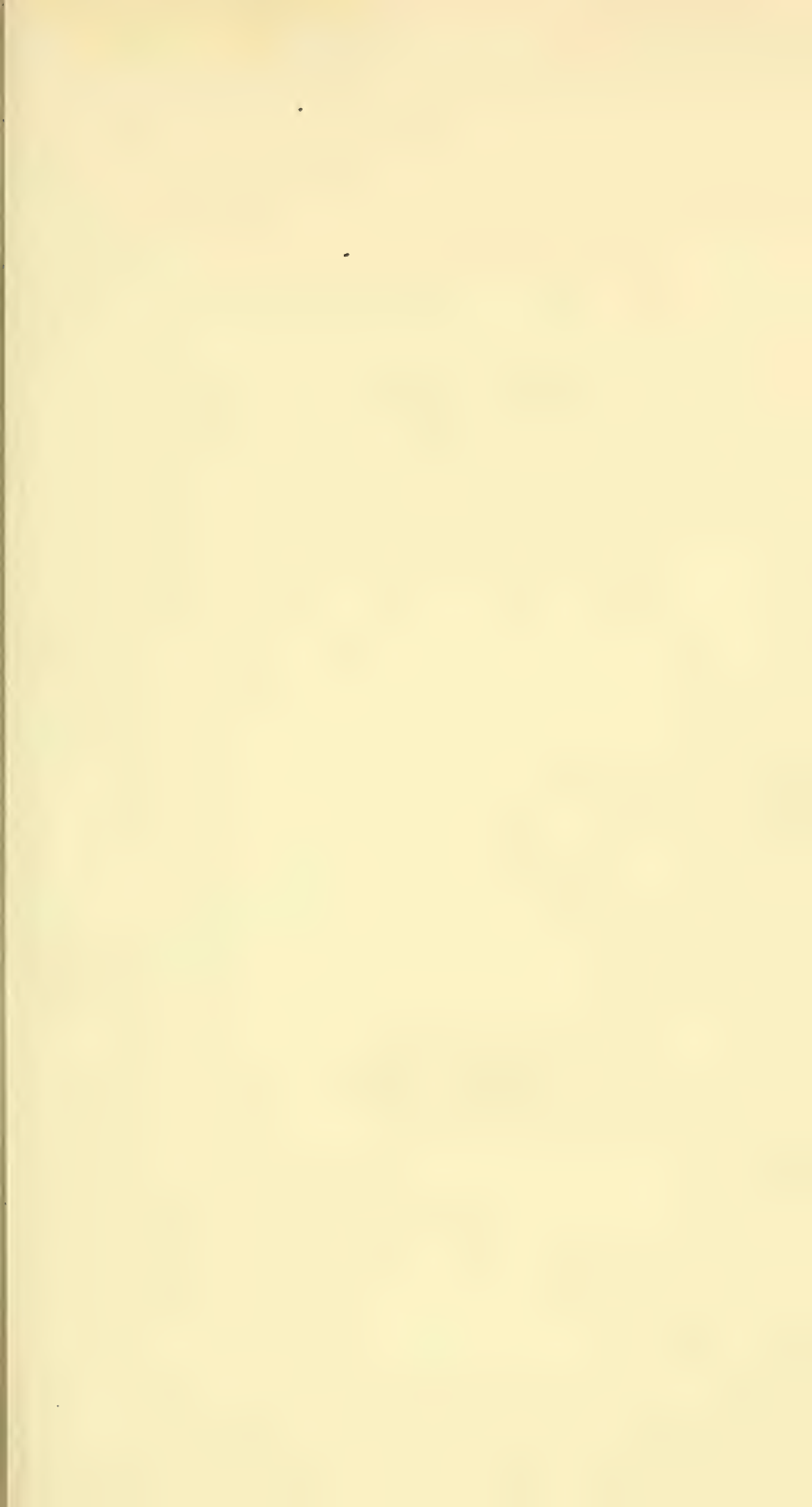
OBSERVATIONS.

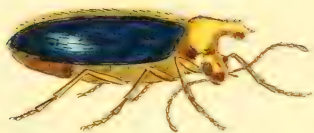
This singular species occurred near the Rocky Mountains, on the banks of the Arkansaw river. It is widely distinct from either of the preceding species, as well by the much compressed form of the rostrum, as by the more obvious dissimilarity of colour.

PLATE IX.

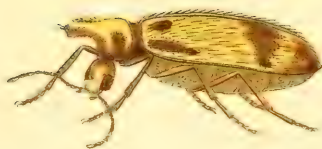
The upper left figure ; the natural size is represented by a line, and an enlarged view of the head and part of the thorax is added.

PLATE IX.





LEONARDUS GILBERTUS



ANTHICUS.

GENERIC CHARACTER.

Antennæ with conic joints, the second and third nearly equal, terminal one ovate-oblong; labial palpi terminated by a small truncate joint; thorax subcordate, often strangulated near the middle; penultimate tarsal joints bilobate; nails simple.

OBSERVATIONS.

The type of the insects which now constitute the genus *ANTHICUS* of Fabricius, was included by Linné in that of *MELŒ*, by Geoffroy, Olivier and Illiger in that of *NOTOXUS*, and by Marsham in that of *LYTTA*. I formerly adopted Geoffroy's designation, but that name has since been adopted by European naturalists for a very different genus of insects.

ANTHICUS BICOLOR.

SPECIFIC CHARACTER.

Blackish, thorax with a projecting horn, and with the feet testaceous, immaculate.

DESCRIPTION.

Head very dark testaceous; *front* and *vertex* covered by short incumbent hair of a silky lustre; *eyes* black; *thorax* testaceous, immaculate; *horn* obtusely dentate each side, and somewhat bicarinate above; *scutel* small, black; *elytra* purplish-black; *breast* and *abdomen* testaceous, sericeous; *body* with short incumbent hair; *feet* naked.

OBSERVATIONS.

In the forests of New-Jersey, I have found this little insect in the month of June, on the leaves of the hickory (*JUGLANS tomentosa*, Michaux), and of some other plants. The Rev. John F. Melsheimer, an able Entomologist, in-

formed me that he obtained many specimens from the garden carrot. This species is allied to the *NOTOXUS serricornis* of Panzer, fascicle 32, pl. 17.

The upper figures of the plate, of which the smaller one indicates the natural size.

ANTHICUS MONODON. *Fabr.*

SPECIFIC CHARACTER.

Testaceous; elytra with a black band and spots.

SYNONYM.

ANTHICUS MONODON. *Fabr. Syst. Eleut.* 1, p. 289.

DESCRIPTION.

Body above hairy: *head* with the *vertex* silky: *eyes* fuscous: *thorax* with a lateral obscure spot: *horn* obtusely dentate each side: *scutel* small:

PLATE X.

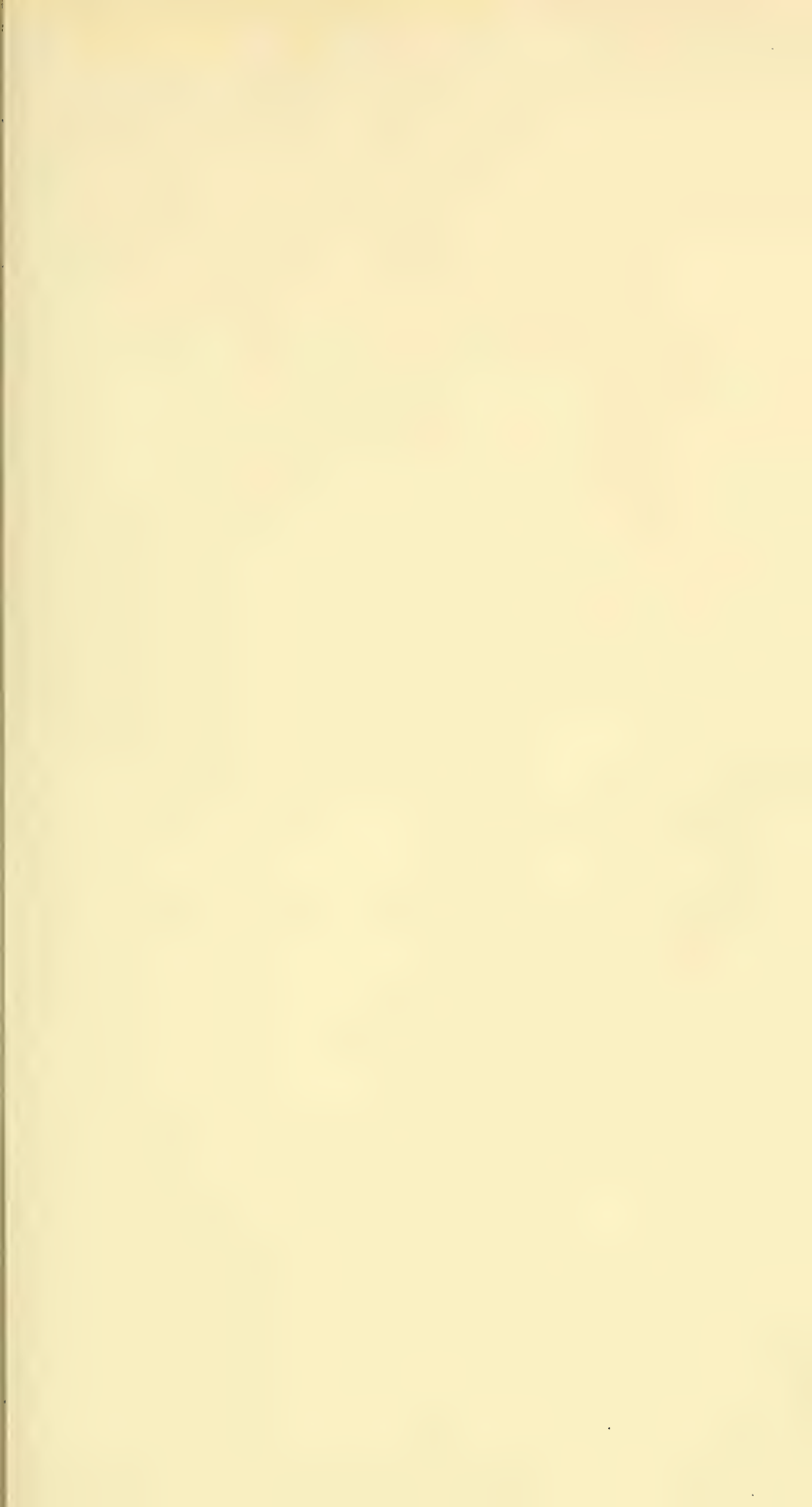
elytra with a black band on the middle; each marked by two black spots at the base, of which one is near the scutel, and the other on the humerus; a black obsolete one near the tip: *abdomen* silky.

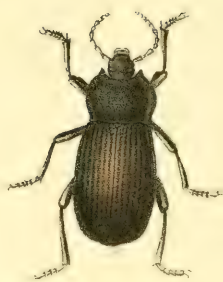
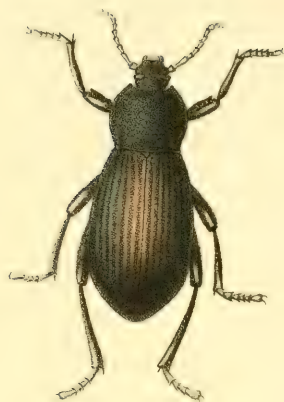
OBSERVATIONS.

Not uncommon. I have found it in June, on the oak and other forest trees: it very much resembles *ANTHICUS monoceros*, of which Marsham observes, “Thorax recta antrorsum exiens in cornu nigricans ultra caput entensum, unde verè monstrosa et insectis insolita facies.” *A. monodon* was first described by Fabricius, but it has not been hitherto figured.

Lower figures, of which the smaller indicates the natural size.

PLATE X.





IPOLITAE



BLAPS.

GENERIC CHARACTER.

Mentum small, or moderately large, quadrate or orbicular; palpi terminated by a larger joint; terminal joint of the maxillary palpi securiform; mandibles naked to their base; clypeus terminated by a straight line; labrum transverse; antennæ moniliform at tip, third joint much larger than the fourth; back flat; thorax almost quadrate; elytra acute at tip.

BLAPS SUTURALIS.

SPECIFIC CHARACTER.

Blackish; elytra scabrous, grooved, reddish-brown, punctured; lateral thoracic margin reflected.

SYNONYM.

BLAPS SUTURALIS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 257.

DESCRIPTION.

Body black-brown, punctured: *antennæ*, third joint longer than the fourth and fifth conjointly; fourth, fifth, sixth and seventh equal obconico-cylindric; eighth obconic-orbicular, shorter than the preceding; remaining joints nearly equal to the eighth, globose; the terminal one somewhat conic-compressed: *labrum* prominent, emarginate, and with very short yellow hairs at tip: *thorax* transverse-quadrate; edge deeply concave before; lateral margin dilated, reflected; lateral edge regularly arquated, slightly excurved at base; posterior edge slightly flexuose, nearly rectilinear; angles acute, anterior ones with a small excurved point; punctures of the disk acute, distant; two obsolete indented spots behind the middle: *scutel* impunctured, distinct, acute: *elytra* with seven grooves, the four sutural ones each with a single series of elevated points, remaining grooves with numerous points; a series of points on each of the interstitial lines; lateral

edge reflected, slightly elevated, acute; a sutural, common, reddish-brown margin: *epipleura* scabrous and punctured, with four or five obsolete impressed striæ: *feet* scabrous, anterior thighs slightly dilated beneath before the tip into an obtuse angle.

Length one inch nearly.

OBSERVATIONS.

During the progress of Major Long's expedition up the Missouri, that enterprising and excellent officer entrusted me with the direction of a small party of thirteen persons, destined to explore the country on the south side of that extended river. After encountering many obstacles and privations which it is unnecessary to enumerate, the party arrived at the village of the Konza Indians, hungry, fatigued, and out of health. Commiserating our situation, these sons of nature, although suffering under the injustice of white people, received us with their characteristic hospitality, and ameliorated our condition by the luxuries of repletion and repose. Whilst sitting in the large earth-covered dwelling of the principal chief, in presence of several hundred of his people, assembled to view the arms, equip-

ments, and appearance of the party, I enjoyed the additional gratification to see an individual of this fine species of *BLAPS* running towards us from the feet of the crowd. The act of empaling this unlucky fugitive at once conferred upon me the respectful and mystic title of "medicine man," from the superstitious faith of that simple people.

On the subsequent journey towards the Rocky Mountains, several specimens occurred, together with other insects of the same classical division, till then unknown.

The upper right figure.

BLAPS ACUTA.

SPECIFIC CHARACTER.

Blackish ; elytra scabrous, grooved ; dilated sutural margin reddish-brown ; exterior edge acute ; thoracic margin not reflected.

PLATE XVI.

SYNONYM.

BLAPS ACUTA. *Nobis. Journ. Acad. Nat. Sciences,*
vol. iii. p. 258.

DESCRIPTION.

Body blackish, punctured: *head* with larger punctures than those of the thorax: *antennæ* as in the preceding species: *labrum* prominent, emarginate, with short yellow hairs at tip: *thorax* subquadrate; anterior edge concave; punctures minute, separate; lateral margin not reflected; lateral edge regularly arquated, a little excurved at base; posterior edge nearly rectilinear: *scutel* impunctured: *elytra* grooved; the four sutural grooves with a single series of elevated points; interstitial lines with about one series of distant punctures; sutural margin obsoletely reddish-brown; exterior edge acute: *epipleura* obsoletely grooved, scabrous, punctured, and from the base to near the middle tinged with reddish-brown: *anterior thighs* dilated, and armed with a prominent spine near the tip.

Length nearly one inch and one-fifth.

PLATE XVI.

OBSERVATIONS.

The gradually recurved form of the lateral margin of the thorax in the preceding species, gives to the whole thorax a somewhat concave appearance, notwithstanding the convexity of the disk. In this conformation the present insect is obviously distinct, although very similar as respects general colour, the form of the elytra, feet, and abdomen. The thorax here exhibits a regular convexity, which gradually subsides towards the lateral edges. This species occurred in Missouri, near Council Bluff.

The upper left figure.

BLAPS OBSCURA.

SPECIFIC CHARACTER.

Blackish ; elytra scabrous, grooved, dark reddish-brown, margin rounded, thoracic margin not reflected.

SYNONYM.

BLAPS OBSCURA. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 259.

DESCRIPTION.

This species resembles the preceding, but the thorax is proportionally longer, the elytra are of a dull reddish-brown colour, approaching to piceous, and the lateral margin is rounded so as to exhibit no edge.

Length more than one inch.

OBSERVATIONS.

I obtained this insect in the country bordering the river Platte, within a hundred miles of the Rocky Mountains.

The lower left figure.

PLATE XVI.

BLAPS HISPILABRIS.

SPECIFIC CHARACTER.

Blackish; elytra scabrous, grooved; sutural margin obsoletely reddish-brown; labrum with black, rigid hairs.

SYNONYM.

BLAPS HISPILABRIS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 259.

DESCRIPTION.

In form of the elytra, their lateral curve, roundity of edge, sculpture and colour, this species resembles the *obscura*; but the anterior angles of the thorax are distinctly excurved and acute, the posterior angles viewed from above exhibit no excuvature; the scutel is proportionally smaller and more rounded, and the labrum is distinctly armed with many black rigid hairs extending forward, and projecting beyond the extremity of the labrum.

Length more than four-fifths of an inch.

Inhabits Missouri.

The lower right figure; the figure near the bottom of the plate is a magnified representation of an antenna.

PLATE XVI.





LYC. NA. VALENT.



CICINDELA.

GENERIC CHARACTER.

Antennæ filiform ; clypeus shorter than the labrum ; maxillæ monodactyle, with two very distinct palpi, of which the exterior one is nearly equal to the labial palpi, penultimate joint of the latter hairy ; mentum trifid, the divisions nearly equal in length ; feet slender, elongated ; anterior tibia without a sinus near the tip.

OBSERVATIONS.

A very natural and interesting group of insects. Many species inhabit this country, the more common of which, such as the *vulgaris*, *sex-guttata* and *punctulata*, are familiar to most persons who delight in rural scenery. They inhabit arid situations, run and fly swiftly, and live upon prey, which they seize by means of their somewhat elongated and very acute mandibles.

PLATE XVIII.

CICINDELA DECEMNOTATA.

SPECIFIC CHARACTER.

Green, above tinged with cupreous ; elytra margined with bright green or bluish ; four white spots and an intermediate refracted band.

DESCRIPTION.

Labrum three-toothed, white : *mandibles* black, base white : *elytra* with a white spot on the shoulder, another equidistant from the first and the band : *band* broad, arising from the middle of the margin, refracted at the centre of the elytrum, and terminated near the suture in a line with the tip of the third spot ; this spot is large, orbicular, and placed near the external tip of the terminal one, which is transverse and triangular : *body* beneath green : *trochanters* and *tail* purple.

OBSERVATIONS.

The specimen from which this description and the annexed representation were taken, is a

PLATE XVIII.

female, the only one I have seen: it was caught by Mr. Nuttall, on the sandy alluvions of the Missouri, above the confluence of the river Platte.

Upper figure of the plate.

CICINDELA FORMOSA.

SPECIFIC CHARACTER.

Red cupreous, brilliant; elytra with a three branched, broad white margin.

DESCRIPTION.

Front hairy: *labrum* large, three-toothed: *elytra* with a broad white border, anterior and posterior branches short, intermediate one flexuous, nearly reaching the suture; edge of the elytra green: *body* beneath green or purple-blue, very hairy: *thighs* blue, *tibia* green.

Length seven-tenths, breadth one-fourth of an inch.

PLATE XVIII.

OBSERVATIONS.

A beautiful species; it was captured by Mr. Thomas Nuttall, on the sandy alluvions of the Missouri river, above the confluence of the Platte.

Lower figure of the plate.

PLATE XVIII.



TYPE - 115-412





LYCUS.

GENERIC CHARACTER.

Head retracted; antennæ approximate, much compressed, more or less serrated; mouth small, produced into a short rostrum; maxillary palpi much longer than the labiales, terminal joint triangular, truncated; mandibles at tip, entire and acute: elytra thin and flexible, nearly of equal breadth, or much enlarged towards the tip; thorax receiving and covering the head, rounded before; penultimate joint of the tarsi bilobated.

OBSERVATIONS.

These insects are somewhat similar in their appearance to the well known "Fire-fly," whose scintillations, on a summer's evening, are scarcely less abundant than the lights of the firmament, which they feebly, and but for a moment, rival. But *LYCUS* is not endowed with the property of yielding light, and it is further distinguished from *LAMPYRIS* by the somewhat elongated mouth, eyes of moderate size, and by the form of the

terminal joint of the palpi, which is dilated, compressed, and truncated at tip. Another kindred genus, *OMALISUS*, of Geoffroy, is in like manner destitute of the curious power of giving light, but the mouth is not rostrated, the second and third joints of the antennæ are very short, and the head is only in part covered by the thorax.

Fabricius separated these insects from *LAMPYRIS*, under the name of *LYCUS*, (*λύκος*.) a word, which, according to Olivier, was employed by Herzychius to designate a species of spider; by Atheneus for a fish; and by Aristotle for a kind of bird. But the word was commonly used by the Greeks, and by Homer himself, to indicate the wolf.

In respect to form, the body is, in many instances, somewhat linear, that is, having the sides approaching to parallelism; but in the *L. latissimus*, Fabr. of Africa, and the *L. palliatus*, Fabr. of the Cape of Good Hope, the elytra are so much dilated as to give the species an orbicular appearance; whilst in other species, as the *L. fasciatus*, Fabr. of Cayenne, these substitutes for anterior wings are greatly dilated, only towards their posterior extremities. Many have this dilatation, which is more particularly observ-

able in the males. Their colours are chiefly fulvous, violet-black, and sanguineous.

The larva is supposed to live in the earth; the perfect insect is innoxious, and is found on flowers.

LYCUS RETICULATUS.

SPECIFIC CHARACTER.

Black; lateral thoracic margins fulvous; elytra fulvous, with a band, and extremity, blackish.

SYNONYM.

LYCUS RETICULATUS. *Fabr. Syst. Eleut.* pt. 2. p. 111. *Oliv. Ins.* vol. ii. No. 29, p. 7. pl. 1, fig. 7.

DESCRIPTION.

Body deep black, polished: *antennæ* exceeding the middle of the elytra, opake: *rostrum* short: *thorax* black, the dilated lateral margins a little recurved, fulvous; an acute carina in the middle;

posterior angles attenuated, prominent and acute: *elytra* fulvous, with four elevated lines, which are alternately larger, the suture and exterior edge are also elevated; interstitial spaces with numerous transverse elevated lines; near the base, is a broad black band, which nearly reaches the middle, and is continued along the suture to the base; a much dilated terminal black band, which does not reach the middle; both these bands are slightly tinged with violaceous: *wings* blackish, the nervures margined with whitish: *feet* sericeous.

OBSERVATIONS.

This species may well be said to inhabit North America, for it would seem to be found in almost every part of it, excepting, perhaps, the region beyond the Rocky Mountains, and the more northern inhospitable solitude of Canada. I have received it from Mr. Holmes of Maine, and have myself found specimens in Missouri, North-West Territory, and East Florida. In Pennsylvania it is very common.

The *elytra* of the male, are more dilated behind than those of the female.

The upper left figure of the plate.

LYCUS TERMINALIS.

SPECIFIC CHARACTER.

Black; thorax with fulvous lateral margins; elytra fulvous, with a black tip.

SYNONYM.

LYCUS TERMINALIS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 178.

DESCRIPTION.

Body deep black, polished: *antennæ* reaching the middle of the elytra, opake: *rostrum* short: *thorax* black, the dilated lateral margins a little recurved, fulvous; an acute carina in the middle; posterior angles attenuated, prominent, acute: *scutel* black: *elytra* fulvous, with four elevated lines, which are alternately a little larger; the suture and exterior edge are also a little elevated; interstitial spaces with numerous transverse elevated lines; terminal third of the surface violaceous-black: *wings* blackish at tip: *feet* sericeous.

OBSERVATIONS.

Numerous specimens were observed by Major Long's party in Missouri and Arkansaw. They occurred in the prairies on plants, and I found them to be especially abundant near the village of the Konza Indians.

It is, without doubt, closely allied to the preceding, but the anterior band of the elytra is always deficient, the tibiæ are somewhat more dilated, and there seems to be a greater difference of size between the sexes, the male being proportionally smaller. We cannot suppose it to be the *L. dimidiatus* Fabr., although the general tenor of the description corresponds very well, inasmuch as he represents the antennæ to be flabellate, with elongated serratures, and the base of the elytra to be rufous, whereas, the antennæ of this species are similar to those of the *reticulatus*. The black on the thorax of the female. is reduced to a narrow line.

The upper right figure of the plate.

PLATE XXI.

LYCUS SANGUINIPENNIS.

SPECIFIC CHARACTER.

Thorax black; lateral margin sanguineous; elytra sanguineous, immaculate.

SYNONYM.

LYCUS SANGUINIPENNIS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 178.

DESCRIPTION.

Body deep black, polished: *rostrum* prominent: *thorax* broad, not narrowed before; the transverse diameter exceeding the longitudinal; livid-black; lateral margins a little recurved, pale sanguineous; a carinate line on the anterior margin, terminating in a groove which extends to the base; posterior angles a little prominent: *scutel* black: *elytra* pale sanguineous, with elevated lines, and intervening transverse ones: *wings* a little dusky, with brown nervures.

PLATE XXI.

OBSERVATIONS.

One individual only, occurred to Major Long's exploring party, near the base of the Rocky Mountains. It is widely distinct from the preceding species.

The lower right figure.

LYCUS PERFACETUS.

SPECIFIC CHARACTER.

Black; thorax each side rufous; elytra striate.

DESCRIPTION.

Body deep black: *head* polished, with a deeply impressed longitudinal line: *antennæ* opaque, compressed, a little serrated; second joint more than half the length of the third, which is as long as the fourth, though less dilated: *thorax* somewhat unequal, polished black, with broad rufous lateral margins; an impressed longitudinal line; posterior angles acute: *elytra* with slightly impressed striæ.

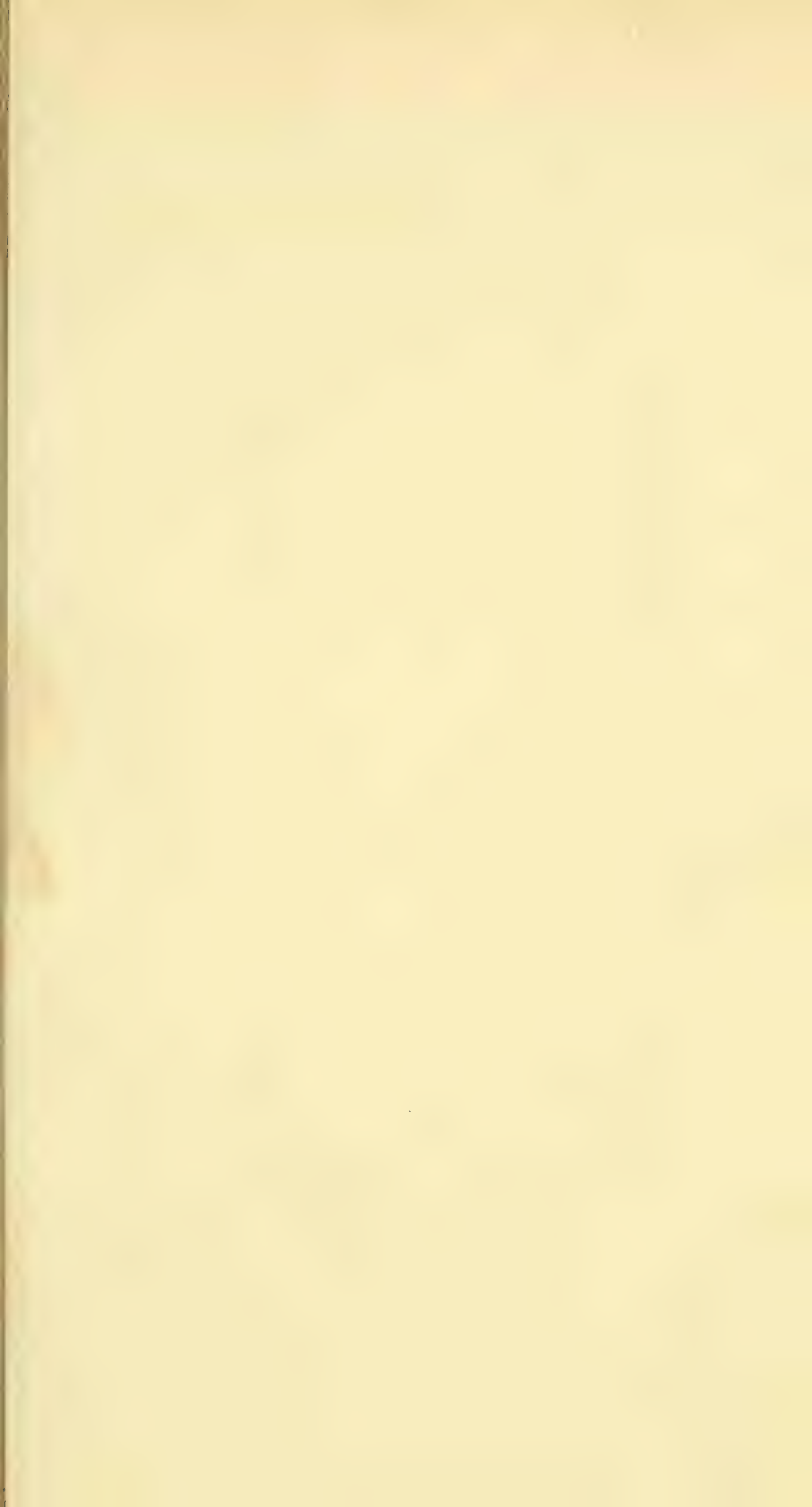
and rounded interstitial lines: *beneath* polished black.

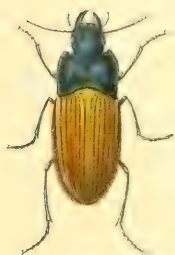
OBSERVATION.

Inhabits Pennsylvania.

The lower left figure of the plate.

PLATE XXI.





THE LACINIAE.



DICÆLUS.

GENERIC CHARACTER.

Mandibles destitute of an articulated nail at tip; palpi six, terminal joint, obconic, truncated; anterior tibiæ emarginate; two anterior tarsi dilated in the male, and furnished beneath, with dense, granuliform papillæ; antennæ filiform; labrum emarginated, and with a longitudinal indented line; posterior thoracic angles, covering the humeral angles.

OBSERVATIONS.

As respects number of species, this is a limited group of insects. Their aspect is, however, striking and peculiar, the body being large, dilated, and depressed, with profoundly indented striæ on their elytra; the posterior angles of the thorax extend far backward, covering the base of the elytra, so as to present no interval between the thorax and abdomen. Our great master, Linné, would have placed these insects in his comprehensive genus *CARABUS*, which in the

modern system, is a large family, distinguished by the name of CARABIDÆ, and containing nearly ninety genera, of which the present is one. The genus DICÆLUS, was established by Professor Bonelli, of Turin, in an excellent essay, entitled "Observations Entomologiques," which was published in the Memoirs of the Imperial Academy of Turin.

DICÆLUS VIOLACEUS.

SPECIFIC CHARACTER.

Above and beneath, violaceous-black; antennæ. mouth, and feet, black.

SYNONYM.

DICÆLUS VIOLACEUS. *Bonelli. Obs. Entom. in Mem. de l'Acad. Imper. de Turin.* And the author, in the *Trans. Amer. Philos. Soc.* vol. ii. New Series, p. 67.

DESCRIPTION.

Head black, obsoletely tinged with purplish: *mouth* and *antennæ*, black: *thorax* with the disk

black, faintly tinged with violaceous; this colour is very obvious on the lateral edge, and posterior margins; lateral, a little excurved near the posterior angles: *elytra* deeply striated; the disk is less distinctly violaceous than the margin, and in a particular light, their colour exhibits a slight greenish tinge; *beneath* violaceous, and more particularly so on each side: *epipleura* bright violaceous.

OBSERVATIONS.

It seems probable, that this species is not an inhabitant of the northern part of the United States, or if found at all in this region, it is certainly very rare. It is, without doubt, chiefly limited in its range to the southern and southwestern states, but it is not known to be abundant any where. In my specimen, the second and third interstitial lines of each elytrum, are connected near the base by a transverse line, but this is very possibly not a permanent character. It is now figured for the first time.

The upper right figure.

PLATE XXIV.

DICÆLUS SPLENDIDUS.

SPECIFIC CHARACTER.

Thorax violaceous; elytra cupreous brilliant.

SYNONYM.

DICÆLUS SPLENDIDUS. *Nobis. Trans. Amer. Philos. Soc.* vol. ii. New Series, p. 69.

DESCRIPTION.

Head black: *thorax* hardly perceptibly narrowed at base; the posterior part of the lateral edge is not in the slightest degree excurved, but proceeds rectilinearly to the posterior angle; lateral and posterior margins depressed, lateral edge reflected; colour blackish-violaceous on the disk, and more vivid violaceous on the lateral and posterior margins: *elytra* highly polished, brilliant red coppery, exhibiting in a particular light, a green reflection; humeral carina extending two thirds the length of the elytra; striæ

profoundly impressed: *beneath* bluish-purple:
feet black.

OBSERVATIONS.

This is by far the most beautiful species of the genus, yet discovered. When the rays of light fall perpendicularly on the surface of the elytra, a highly brilliant reddish-coppery colour is exhibited, but when the rays are reflected at a considerable angle, the tint changes to a fine polished green. The specimen was brought from the Missouri, by Mr. Thomas Nuttall.

The upper left figure.

DICÆLUS DILATATUS.

SPECIFIC CHARACTER.

Black, impunctured; striæ obsoletely punctured towards the tip.

PLATE XXIV.

SYNONYM.

DICÆLUS DILATATUS. *Nobis. Trans. Amer. Philos. Soc.* vol. ii. New Series, p. 68.

DESCRIPTION.

Head black: *palpi* blackish-piceous: *antennæ* brown towards the tip: *thorax* entirely black; margins depressed; lateral edge slightly reflected; base very slightly wider than any other part; lateral edge nearly rectilinear, very slightly incurved before, and not at all excurved near the posterior angles: *elytra* totally black; *striae* profound, very slightly punctured towards the tip: *feet* piceous.

OBSERVATIONS.

This species is an inhabitant of Pennsylvania, and may be occasionally found under stones and other objects, which rest loosely on the soil. Its colour is a uniform black, without any tint of those gay colours for which the two preceding species are remarkable.

The lower left figure.

DICÆLUS SCULPTILIS.

SPECIFIC CHARACTER.

Black; elytra with irregularly serpentine striæ.

SYNONYM.

DICÆLUS SCULPTILIS. *Nobis. Trans. Amer. Philos. Soc.* vol. ii. New Series, p. 68.

DESCRIPTION.

Body entirely black, immaculate: *thorax* very slightly widest at base; the lateral edge not at all excurved near the basal angle, and the commencement of the anterior curvature of this edge, is at the middle of its length; *elytra* with its striæ very irregularly serpentine; the interstitial lines are irregular and unequal on their sides, and exhibit a very few adventitious punctures, with raised centres.

OBSERVATIONS.

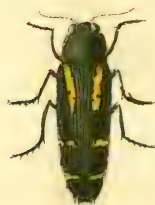
Very distinct from the foregoing species, by the singular irregularity, and sculptured appearance, of the striæ of the elytra. It was discovered in Missouri by Mr. Thomas Nuttall, and has not been found in the Atlantic States.

The lower right figure.

PLATE XXIV.



NO. 51. NYSIUS GALT.



BUPRESTIS.

GENERIC CHARACTER.

Body firm; head vertically inserted in the thorax to the eyes; antennæ short, filiform, serrated; palpi very short, filiform, or but slightly enlarged towards the tip; mandibles entire at tip; maxillæ bifid at the extremity; thorax with its posterior edge applied to the base of the elytra, the posterior angles not elongated; anterior margin of the pectus advanced towards the mouth, its opposite extremity elongated in the form of a horn, which is received into a sinus of the postpectus, and is not concealed in it; feet short, tarsi dilated, somewhat triangular, the penultimate one bilobated.

OBSERVATIONS.

A large and very natural assemblage of insects, remaining at the present day, nearly as it was founded by Linné. A few of his smaller species have been separated from it, by Fabricius, under the name of *TRACHYS*, chiefly distinguished by

the shorter, more dilated, and sub-triangular form of the body. Two or three very small species, discovered since his time, and referred to this genus by Fabricius and Olivier, have been generically separated by Latreille, with the name of *APHANISTICUS*; these have clavate antennæ.

The family *BUPRESTIADÆ*, consisting of the above mentioned genera, is closely allied to that of *ELATERIDÆ*. But all the species of the latter group, are endowed with the power of leaping, by an abrupt inflection of the anterior portion of the body; their tarsi, also, are simple, without any dilatation of the basal joints.

Many of these insects are gaily ornamented with the most splendid colours, which often shine with a metallic brilliancy. Some have a general coppery tint, whilst others present the beautiful contrast of fine yellow spots and lines, on a polished green or blue surface, and others exhibit the appearance of burnished gold, inlaid on emerald or ebony. In fine, all that is rich and brilliant in colours, may be observed in the decoration of these insects.

They in general, walk slowly, though some run with considerable agility; they rise on the wing with facility, and fly with ease and rapidity. Many elude their enemies by folding their feet

and antennæ close to the body, and falling, apparently dead, to the earth. The females have a coriaceous appendage at the posterior part of the abdomen, composed of three pieces; this is probably the oviduct, by means of which, they deposit their eggs in old wood, where the larvæ lives until its change into the perfect state. Their existence in the perfect state is but short, appearing to be devoted almost exclusively to the great object of continuing the race.

Though beautiful and rare, the species are very numerous, and upwards of two hundred are now known; of these, the largest and most splendid, are inhabitants of the American continent.

A species of *BUPRESTIS*, has furnished us with a remarkable instance of insect longevity; the following is extracted from a communication, by Mr. Marsham, to the Linnæan Society. (See vol. x. p. 399.)

Mr. J. Montague, on going to his desk in the office of Works at Guildhall, observed an insect which had been seen by his brother in the early part of the day, endeavouring to extricate itself from the wood, which formed part of the desk; he carefully released it from the cell, and it proved to be *BUPRESTIS SPLENDENS* of Fabri-

cius, full of strength and vigour. The desk had been fixed in the office twenty-two years before, and was made of fir wood, imported from the Baltic. That the insect existed in the wood before the desk was made, was proved by the fact of the channel formed by the insect, having been then transversely cut.

The word BUPRESTIS, is derived from the Greek *Βυπρεστις*; but to what insect that ancient people applied the word, is not known with certainty at the present day. The Romans, also, held the same insect to be poisonous, and their civilians recommended the punishment of the law to be inflicted upon those persons who rashly administer, internally, those poisonous insects, the *pithyocampas*, (*Bombyx pithyocampa*, Fabr.) and the BUPRESTIS. It is evident, however, that they had no reference to any individual of this family, inasmuch as no one of the species is capable of inflicting a serious injury on any of the larger animals. But as the ancient BUPRESTIS was stated to be endowed with the power of destroying even the ox, it is conjectured that the Greeks thus designated a vesicating insect, such as a MYLABRIS, a LYTTEA, or, according to some authors, a CARABUS, the two former of which, when taken into the stomach,

produce the most serious effects on the animal economy, and even death itself, under the most afflicting circumstances.

BUPRESTIS RUFIPES.

SPECIFIC CHARACTER.

Elytra, each with four yellow spots, of which the basal one is longitudinal.

SYNONYM.

BUPRESTIS RUFIPES. *Oliv. Ins.* vol. ii. No. 32, p. 16, pl. 7, fig. 73, a. b. *Fabr. Syst. Eleut.* pt. 2, p. 188, No. 13. *Encyc. Meth.* No. 15. *Herbst. Natur.* pt. ix, p. 79, pl. 140, fig. 3.

DESCRIPTION.

Body green, polished, slightly tinged with brassy: *head* rough with deeply impressed confluent punctures; an obsolete impressed line on the vertex, becoming elevated on the front: *antennæ* rufous: *thorax* with small distinct pro-

found punctures, and an impressed spot before the scutel: *elytra* with narrow, deep striæ, and, at tip, bidentated; an abbreviated fulvous vitta originates near the humerus, and extends near to the middle; a transverse, abbreviated, undulated fulvous band, a little beyond the middle, does not quite reach the suture; intermediate between this band and the tip of the elytra, is another undulated one, of the same colour; at the tip, is also a narrow band: *pectus* greenish-violaceous; a dilated vitta in the middle, and another each side, fulvous; the latter on its anterior part passes a little above the edge of the thorax, and is in some specimens continued backwards to the base of the thorax, forming a margin on that part, but not covering the edge; *postpectus* green, tinged with brassy, and somewhat sericeous; a yellow spot near the middle, and two or three on each side: *feet* rufo-violaceous: *venter* rufo-violaceous, more or less varied with green, particularly at the base, and with three series of obscure fulvous spots, two of which are lateral.

OBSERVATIONS.

One of the largest species of North America, at the same time very beautifully ornamented.

Fabricius quotes Petivier's work, and states its native region to be Maryland; Olivier observes that it is found in Carolina; I obtained a specimen in Missouri, when with Major Long's party in that country, and another has been found in Pennsylvania; but in this state they must be extremely rare.

The lower right figure.

BUPRESTIS FASCIATA.

SPECIFIC CHARACTER.

Green brilliant; elytra with a yellow band and spot.

SYNONYM.

BUPRESTIS FASCIATA. *Herbst. Natur. Syst.* vol. ix. p. 162, pl. 145, fig. 22. *Fabr. Syst. Eleut.* pt. 2, p. 191, No. 31. *Oliv. Ins.* vol. ii. No. 32, sp. 22, pl. 9, fig. 92.

DESCRIPTION.

Body highly polished, green with a brassy tinge, punctured: *head* confluent punctured: *thorax* more densely punctured on the anterior portion; on the middle of the posterior margin a distinct indentation: *elytra* striate, the striæ punctured; a yellow undulated band behind the middle, with a dark violaceous areola; midway between the band and the tip, is a yellow spot on each elytrum, with a dark violaceous areola; tip bidentate: *beneath* immaculate: *feet* of the same colour as the body.

OBSERVATIONS.

This beautiful insect was sent to me by Mr. E. Holmes of Gardiner Lyceum, Maine. The authors quoted in our synonyms, observe that it inhabits North America, without mentioning any particular part of the continent in which it was found. I had supposed it to be a native of the southern States, and was therefore surprised to receive it from the northern extremity of the Union. In his description of this species, Olivier remarks, that “on voit quelquefois un point fauve vers le milieu de chaque élytre,

entouré de bleu," and this he represents in his plate, but I have only a single specimen, and reference to another in the collection of the Philadelphia Museum, both corresponding with the annexed figure.

Herbst describes Olivier's variety as a distinct species, under the name of *C. maculata*, (vol. ix, p. 163, pl. 148, fig. 5,) without any reference to Olivier.

The upper right figure.

BUPRESTIS CONFLUENTA.

SPECIFIC CHARACTER.

Green, polished, punctured; elytra with confluent yellow spots.

SYNONYM.

BUPRESTIS CONFLUENTA. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 159.

PLATE XXVI.

DESCRIPTION.

Body bright green, punctured: *head* densely and confluent punctured; an obsolete indented longitudinal line, more distinct on the vertex: *antennæ* purplish, the basal joint rufous: *thorax* densely and confluent punctured, more particularly on the anterior and lateral margins; in the middle of the disk, these punctures are somewhat sparse: *scutel* rounded, convex: *elytra* striate, slightly tinged with violaceous; the striae and interstitial lines, slightly punctured; very numerous transversely confluent light yellow dots; tip slightly obliquely truncated, acute at the suture, but not mucronate or dentate; edge entire: *tarsi* purplish-brown.

OBSERVATIONS.

I cannot find any notice of this very fine insect in any attainable author, and having never obtained an individual in the Atlantic States, I think it highly probable, that it is altogether limited in its range, to the Western region.

A specimen was presented to me, when at Fort Osage, on the Missouri river, by Lieut. Scott, of the Rifle regiment, a gentleman, whose

extraordinary skill as a marksman, has almost passed into a proverb, in that country. I obtained two other specimens, during the progress of Major Long's exploring party towards the mountains.

The thorax varies in being in some specimens of a bright blue colour, in others purplish.

The lower left figure.

BUPRESTIS CAMPESTRIS.

SPECIFIC CHARACTER.

Elytra serrate, quadrilineate; beneath canaliculate.

SYNONYM.

BUPRESTIS CAMPESTRIS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 165.

PLATE XXVI.

DESCRIPTION.

Head rugous, with large confluent punctures : *front* concave : *antennæ* purple-black, the first and second joints greenish-cupreous : *thorax* unequal, with large confluent punctures each side, and canaliculate along the middle ; posterior angles acute : *scutel* very small, transverse suborbicular, indented on the middle : *elytra* with four distant, somewhat elevated lines, and one or two near the suture ; in the interstitial spaces are irregular, slightly elevated transverse lines, hardly visible to the unassisted eye ; before the middle of each elytrum, is a large, very slightly impressed spot, and another similar one, is rather behind the middle ; there is also a very small common indented spot on the suture, opposite to the former spot ; exterior edge serrated, from near the middle to the tip ; tip simple, somewhat acute : *beneath* cupreous, polished ; a brilliant dilated coppery line extends from the mouth to the pectus ; a large groove originates on the anterior part of the pectus, and terminates on the second segment of the venter : *tarsi* dusky bluish.

OBSERVATIONS.

This is one of our largest species, and although far less agreeably decorated than the preceding, is yet distinguished by a more uniform garb of polished metallic colouring. I captured the specimen when descending the Arkansaw river, with a detachment of Major Long's exploring party.

The upper left figure.

PLATE XXVI.



LEUCOSTRIPUS LATE



CRYPTOCEPHALUS.

GENERIC CHARACTER.

Body short, robust, cylindric ; head vertical ; antennæ inserted between the eyes, simple, filiform, more than half the length of the body ; palpi terminating with a conic-cylindric joint, maxillary palpi very apparent.

OBSERVATIONS.

Many of this group are agreeably ornamented with coloured spots and lines. They were mingled with the *CHRYSOMELÆ* by Linné, from which they may be known by the more cylindrical form of the body, and by the abrupt deflection of the head. In these characters, the present genus corresponds with *CLYTHRA*, to which it is more closely allied than to any other ; but the antennæ of *CLYTHRA* are short and serrated, instead of being long, simple, and filiform, as in the genus before us. The genus *CRYPTOCEPHALUS* was established by Geoffroy, and has been adopted by the greater number of entomo-

logists who have written since his time. These insects feed on vegetables, and many of the species are very injurious to useful plants, by devouring their leaves and buds. The larva is furnished with six scaly feet, which are situated near the head; some of the species in the larva state, protect themselves from the ardour of the sun, and from the attacks of their enemies, by fabricating a cylindrical covering, closed at one end, into which they can withdraw every part of the body; it is generally composed of small grains of vegetable and excrementitious matter, agglutinated together by a viscous excretion from the body. With the head and feet protruded from this little domicil, and carrying it erect with respect to their pathway, the artificer proceeds at a slow pace, in quest of food. The perfect insect is, also, slow in its movements, and on the approach of danger, it counterfeits death by retracting the feet and antennæ close to the body, and permitting itself to fall from any height to the ground.

PLATE XXVIII.

CRYPTOCEPHALUS ORNATUS.

SPECIFIC CHARACTER.

Reddish-brown; thorax with the margin and two spots, yellow; elytra yellow, with two black vittæ on each.

SYNONYM.

CRYPTOCEPHALUS ORNATUS. *Fabr. Syst. Eleut.*
pt. 2, p. 47, No. 32. *Coqueb. Illustr. Icon.*
Insect. p. 129, pl. 29, fig. 10, a. b.

DESCRIPTION.

Body reddish-brown: *antennæ* black, five basal joints pale reddish-yellow; orbital line yellow: *thorax* with the anterior and lateral margins yellow, the edge black; base with two yellow, oblique, abbreviated lines, curvilinearly united over the scutel, so as to form an arc of a circle: *elytra* pale yellow, with two black, abbreviated vittæ on each, and a black suture; the lateral vitta originates on the humerus, and terminates near

the tip; the inner one is oblique, and becomes confluent with the suture a little beyond the middle; the common black sutural vitta includes the scutel at base, and does not reach the tip; edge all round, black; *anal segment* with an obscure yellow arc.

OBSERVATIONS.

The *ornatus* of Herbst, in Fuessly's Archives, and of Olivier in the Encyc. Method. is quite a different insect from the present; but as that is an uncertain species, we prefer retaining the name for our insect.

This species is an inhabitant of various parts of the United States. I have found it in the middle and southern States, at the Rocky Mountains, and in the North-Western Territory. It is subject to vary, in having the exterior vitta of the elytra so widely interrupted in its continuity, as to exhibit only two remote spots.

The upper right figure.

PLATE XXVIII.

CRYPTOCEPHALUS CONFLUENTUS.

SPECIFIC CHARACTER.

Rufous; elytra yellow, trilineate with black; the inner line confluent with the suture beyond the middle.

SYNONYM.

CRYPTOCEPHALUS CONFLUENTUS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 440.

DESCRIPTION.

Body yellowish-rufous: *head* impunctured, yellow; a rufous spot on the vertex, and another surrounding the base of each antenna: *antennæ* black, pale at base: *thorax* impunctured; anterior and lateral margins yellowish; lateral submargin more deeply rufous than the disk: *scutell* black: *elytra* pale yellow, with punctured striæ; three longitudinal, nearly parallel black lines on each elytron, the interior line confluent with the

suture near the tip; edge all round, black: *beneath* rufous.

OBSERVATIONS.

The similarity of this species with the preceding, is obvious, and even striking; but it is specifically distinguished by the existence of two black lines on the elytra, in place of the exterior one of that insect. I obtained several specimens near the Rocky Mountains, when with Major Long's party in that region, but it does not appear to be an inhabitant of the Atlantic States.

The upper left figure.

CRYPTOCEPHALUS BIVITTATUS.

SPECIFIC CHARACTER.

Yellowish-rufous, punctured; elytra yellow, with two vitta, and sutural edge black.

PLATE XXVIII.

SYNONYM.

CRYPTOCEPHALUS BIVITTATUS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 440.

DESCRIPTION.

Body yellowish-rufous, punctured: *orbits* yellow: *front* with a longitudinal indented line: *thorax* with dense impressed punctures; lateral margin and an abbreviated obsolete dorsal line originating at the anterior edge, more distinctly yellow: *scutel* black: *elytra* irregularly and densely punctured, one or two regular series of punctures on the exterior margin; colour yellow; each elytrum with a broad black vitta originating midway between the humerus and scutel, and not reaching the tip; another vitta, less dilated than the preceding, takes its rise at the humerus, and terminates a little beyond the tip of the preceding vitta; it is generally interrupted into two or three spots: *beneath* very pale rufous: *postpectus* varied with dusky.

OBSERVATIONS.

I obtained this species near the Rocky Moun-

tains, whilst descending the Arkansaw river with Major Long's exploring party. It is at once distinguishable from its companions on the annexed plate, by the confused and dense punctuation of its elytra.

The middle figure.

CRYPTOCEPHALUS VIDUATUS.

SPECIFIC CHARACTER.

Black; thorax with three abbreviated yellow lines; elytra yellow, with two black vittæ.

SYNONYM.

CRYPTOCEPHALUS VIDUATUS. *Fabr. Syst. Eleut.*
pt. 2, p. 49, No. 49.

DESCRIPTION.

Head black, with a yellowish spot at each superior canthus of the eyes, and another at the mouth: *antennæ* at base yellowish: *front* with

an impressed line: *thorax* densely punctured; anterior and lateral margins yellow, tinged with rufous; a yellow abbreviated line commences at the middle of the anterior margin, and terminates at the middle of the disk; two distant yellow abbreviated lines arise from the basal margin, and terminate each side of the middle of the disk: *scutel* black: *elytra* yellow, with striæ of impressed punctures; two dilated black vittæ, of which one originates on the humerus, and does not reach the tip, the other is rather shorter, originating midway between the preceding and the scutel, and hardly approaching the suture at its tip; suture black: *anal segment* whitish: *beneath* black: *feet* rufous.

OBSERVATIONS.

I obtained the specimen from which this description and the figure were taken, on the bank of the Mississippi river, above the confluence of the Ohio. Some doubts may reasonably be entertained, respecting the identity of this insect and the *viduatus* of Fabricius, on account of its smaller size, and the character of "pedibus variegatus," attributed to his insect by that author. But as the present specimen corresponds with

his description in every other respect, and as the difference in magnitude may be dependent on sex alone, I have ventured to refer it to that species. It is now figured for the first time.

The lower right figure.

CRYPTOCEPHALUS OTHONUS.

SPECIFIC CHARACTER.

Black; thorax with a narrow margin and abbreviated line, dull fulvous; elytra yellowish, with two black vittæ.

DESCRIPTION.

Head with small dense punctures; black, with two triangular yellow or rufous spots at the superior canthi of the eyes: *antennæ* yellowish at base: *thorax* black, confluent punctured, with a narrow margin all round, and a dorsal line extending from the anterior edge to the middle, dull fulvous: *scutel* black: *elytra* dull yellowish-white, with two broad black vittæ, abbreviated

near the tip, the exterior one originates at the humerus, and the other takes its rise on the basal margin, midway between the exterior vitta and the scutel, it does not approach the suture at its tip; sutural edge black; the series of punctures are rather large and profoundly impressed: *beneath* black, punctured: *feet* pale testaceous.

OBSERVATIONS.

This is the *C. bivittatus* of Melsheimer's Catalogue; I certainly would have adopted his name, had I not inadvertently pre-occupied it with the description of the preceding species, before I was acquainted with this insect. It can be readily perceived to be specifically distinct from either of those represented with it on the accompanying plate, by the confluent density of the thoracic punctures, as well as by its colours and their arrangement.

The lower left figure.

PLATE XXVIII.



LANGURIA.

GENERIC CHARACTER.

Body rather slender, cylindrical; antennæ with a gradually formed club of five or six joints; palpi filiform, terminal joint of the labiales a little larger than the others; mandibles bifid at tip; maxillæ with horny teeth; tarsi with dense hairs beneath the three basal joints, the third bilobate.

OBSERVATIONS.

The manners and habits of these insects are but little known, and as the species are chiefly North American, it is with our entomologists, that the task of investigating them will rest. They have been said to frequent flowers, and I can corroborate the truth of the remark, by stating that I have frequently found them on flowers myself; but as Latreille observes, if they feed only on the contents of the nectary, to what use can the horny teeth be applied with which their jaws are furnished? This is a very

limited genus; Fabricius described three species in his last work on insects of this order, two from Sumatra under the names of *TROGOSITA elongata* and *filiformis*, and the other from North America, under that of *TROGOSITA bicolor*. He perceived that they did not altogether correspond with the other species of the group to which he referred them, for when describing the latter species, he expressly states, that in its elongated and cylindrical appearance it differed from *TENEBRIO*, and that it ought perhaps to form a distinct genus. Latreille finally established a genus under the name we have adopted, in his "Histoire Naturelle des Crustacés et Insectes," for the reception of the *bicolor*. In his "Genera Crustaceorum et Insectorum," he described another species under the name of *L. mozardi*; and in the pages of the "Journal of the Academy of Natural Sciences of Philadelphia," I increased the number to six, by the publication of two new species.

PLATE 39.

LANGURIA BICOLOR.

SPECIFIC CHARACTER.

Black, slender; thorax rufous, with a dilated black vitta.

SYNONYMS.

TROGOSITA BICOLOR. *Fabr. Syst. Eleut.* part 1, p. 152.

LANGURIA BICOLOR. *Latr. Hist. Nat. Crust. et Ins.* 12, p. 35. *Genera Crust. et Ins.* 3, p. 65. pl. 11, fig. 11. *Lam. An. sans Vert.* 4, p. 289.

DESCRIPTION.

Body piceous-black, slender: *head* dark piceous, with very obvious punctures: *thorax* pale yellowish-rufous, with obvious, rather distant punctures, and a dilated vitta of a dark piceous colour, occupying about one third of the surface: *clytra* black, with strongly impressed striæ of punctures: *pectus* pale yellowish rufous: *post-*

LANGURIA PUNCTICOLLIS.

SPECIFIC CHARACTER.

Rufous; antennæ, thoracic spot, elytra and feet black.

SYNONYM.

L. PUNCTICOLLIS. *Nob. Jour. Acad. Nat. Sc.*
3, p. 462.

DESCRIPTION.

Body rufous: *antennæ* and *palpi* black: *thorax* with a small, round, black spot on the middle, and an abbreviated, indented line upon the basil margin each side of the middle: *elytra* with rather slight striæ of impressed points, black, slightly tinged with blue: *feet* entirely black: *venter*, terminal segment, black.

PLATE 39.

OBSERVATION.

I obtained this species on the bank of the Mississippi river, above the confluence of the Ohio. It somewhat resembles the *L. bicolor*, Fabr., but is more robust.

The upper figure of the plate.

LANGURIA TRIFASCIATA.

SPECIFIC CHARACTER.

Rufous; head black; elytra bifasciate with violaceous.

SYNONYM.

L. 3.—FASCIATA, *Nob. Jour. Acad. Nat. Sc.* iii.
p. 462.

DESCRIPTION.

Body rufous, punctured: *head* black: *antennæ*, with the third, fourth, fifth, and sixth

joints, dull rufous: *thorax* immaculate: *elytra* with a violaceous base and tip; each band occupying about one-third of the entire length; with striæ of punctures: *feet* pale: *venter* at tip, and obsoletely at base, black.

OBSERVATIONS.

This species was also found on the bank of the Mississippi, above the entrance of the Ohio river. It is about equal in size to the *L. mozardi*, Latr.

The right figure of the plate.

PLATE 39.



THE NATURALIST



ENOPLIUM.

GENERIC CHARACTER.

Three last joints of the antennæ dilated, forming a deeply serrated mass; the fourth, fifth, sixth, seventh, and eighth joints very small; palpi prominent, securiform; body cylindrical; tarsi with but four very obvious joints; penultimate joint bilobate.

OBSERVATIONS.

The species that compose this genus were separated by Latreille, from the genus *Tillus* of Olivier and Fabricius, from the circumstance that the ultimate joints of the antennæ, only, form a serrated mass, and that the tarsi have but four very obvious joints. Dejean mentions but two species as inhabitants of Europe; we have here given four species, but it would seem that the genus might be divided with advantage to the student, for whose convenience also it ought perhaps to be removed to the **TETRAMERA**, together with several kindred genera.

ENOPLIUM ONUSTUM.

SPECIFIC CHARACTER.

Black; thorax red, with two black lines; elytra margined with yellowish

SYNONYM.

E. MARGINATUM. *Nobis. Journ. Acad. Nat. Sciences*, iii. p. 187.

DESCRIPTION.

Body black, hairy, punctured: *labrum* and basal joints of the *palpi*, pale: *thorax* red, with two dilated longitudinal black lines confluent behind: *elytra* with a yellowish margin, suture and base: *thighs* pale.

OBSERVATIONS.

This insect frequently occurs in Pennsylvania; I have also obtained it in the state of Ohio, and

PLATE 41.

Mr. John P. Brace, of Connecticut, presented me with an individual taken in that state. It resembles the *E. pilosum*, Forst. but is readily distinguished by the yellowish margin of the elytra.

I have been informed by Count Dejean, that the specific name *marginatum*, is preoccupied in this genus, I therefore substitute the present appellation.

The upper left figure of the plate.

ENOPLIUM PILOSUM.

SPECIFIC CHARACTER.

Black; thorax red, with two black lines.

SYNONYM.

LAMPYRIS PILOSA. *Forst. Nov. Ins.* p. 49.

PLATE 41.

DESCRIPTION.

Body shining black, covered with very short hairs, punctured: *labrum* dull testaceous: *thorax* bright sanguineous, with two broad longitudinal black vittæ approaching each other to the posterior margin, where they are confluent; anterior margin yellowish, interrupted by the black vittæ: *elytra* entirely black, opaque, immaculate: *wings* black.

OBSERVATIONS.

The very great similarity between the preceding and the present species, would almost persuade us that they are merely varieties of one species; nevertheless, as they seem to be constant in their respective characters, we consider them as distinct, though closely allied species.

The lower right figure of the plate.

PLATE 41.

ENOPLIUM DAMICORNE.

SPECIFIC CHARACTER.

Black; thorax rufous, slightly edged with black.

SYNONYM.

TILLUS DAMICORNIS. *Fabr. Syst. Eleut.* i. p. 282.

E. THORACICUM. *Nobis. Journ. Acad. Nat. Sciences.*

DESCRIPTION.

Body black, hairy, punctured, cylindrical: *antennæ* with the terminal joint narrowed near the tip on the inner side: *thorax* rufous, lateral and posterior edges black: *pectus* rufous: *elytra* black with a slight purplish tinge, immaculate; punctures large, profound, approximate, and behind the middle small, confluent.

PLATE 41.

OBSERVATIONS.

This insect is an inhabitant of the greater part of the Union. I have obtained specimens in Missouri. In my account of the species as above quoted, I made the following remark: "I should consider it the same as the *TILLUS damicornis* of Fabr. but that, in the description of that insect, the author mentions but two dilated joints of the antennæ, whereas in ours there are three dilated joints." Notwithstanding this remark, it agrees with it so well in other respects, that on further consideration, I think we may safely refer it to the *damicorne*, and admit that Fabricius was mistaken in the number of dilated joints. Latreille, in his *Histoire Naturelle*, &c. observes, that "Le tille damicorne de Fabricius diffère peu, or presque point de cette espèce, (*E. weberi*) a en juger par les phrases spécifiques."

The upper right figure of the plate.

PLATE 41.

ENOPLIUM QUADRIPUNCTATUM.

SPECIFIC CHARACTER.

Black; elytra sanguineous, with four black dots.

SYNONYM.

E. 4—PUNCTATUM. *Nobis. Journ. Acad. Nat. Sciences*, iii. p. 188.

DESCRIPTION.

Body black, somewhat hairy, punctured: *thorax* depressed, subquadrate, not contracted behind; angles rounded, punctures confluent each side: *scutel* black: *elytra* sanguineous, each with two black, orbicular, subequal dots, one before, and the other behind the middle.

OBSERVATIONS.

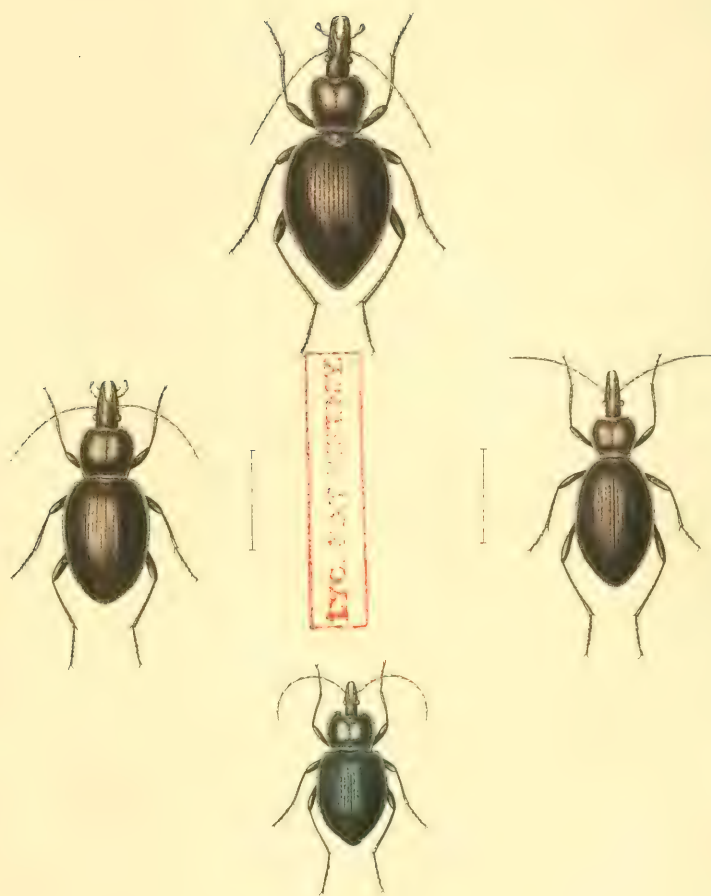
This species is subject to vary in the size of the spots on its elytra, those of some specimens

PLATE 41.

which I obtained in Arkansaw, being much larger than I have ever observed them on those of this state.

The middle figure of the plate, the lower left figure represents the variety.

PLATE 41.



CYCHRUS.

GENERIC CHARACTER.

Head narrower than the thorax; external maxillary and labial palpi dilated, compressed, securiform; labrum elongated, very profoundly emarginate; labium very large, profoundly emarginate, not wider at base than at tip; mandibles narrow, elongated, bidentate near the tip; thorax cordate, slightly, or not at all elevated each side, and not extended behind; abdomen robust, convex; elytra entire, not divided at the suture, carinate each side, and embracing the sides of the abdomen; tarsi alike in the sexes.

OBSERVATIONS.

This is a limited genus, consisting in the time of Fabricius, who constructed it, of only five species. As it now stands, under the reforming hand of Latreille and Dejean, it is certainly more rigidly natural. The latter author, in his "*Species général des Coléop-*

tères," describes nine species, and observes, that they are limited, in their geographical distribution, to Europe, Asiatic Russia, and North America; that although they are, strictly speaking, Carabici, yet they have so much the habit of the Heteromerae, that Linné placed them in his genus Tenebrio.

They are of a blackish colour, glossed with a handsome metallic tint, chiefly of a purplish cast. They inhabit beneath stones, and under prostrate logs.

The word *Cychrus*, is derived from κυχρεος, the Greek name for a bird.

CYCHRUS VIDUUS.

SPECIFIC CHARACTER.

Black; elytra cupreous-violaceous, polished, humeral edge, and lateral margins of the thorax reflected, the latter contracted behind.

PLATE 45.

SYNONYMS.

CYCHRUS UNICOLOR. *Knoch neue beyträge*, p. 187, tab. 8, fig. 1.

NOBIS. *Trans. Amer. Philos. Soc.* vol. ii. *new series*, p. 71.

CYCHRUS VIDUUS. *Dejean, Spec. Gén. Coléop.* vol. ii. p. 12, No. 9.

DESCRIPTION.

Head black, with a slight blue tinge: *antennæ* brown at tip: *thorax* blackish-blue, disk a little convex, and with an impressed line; lateral margins reflected; widest rather before the middle, and narrowed behind; posterior angles rounded: *elytra* bright coppery-violaceous, or dark purplish, with numerous striæ, in which are dilated, confluent punctures: *beneath* black.

OBSERVATIONS.

Probably the largest species of the genus, and is by no means common. The specimen from which the above description, and the annexed figure were taken, was presented to me by Mr. William Hyde of Philadelphia, who

obtained it near the Susquehanna river. Two other specimens have since come into my possession.

This species was first described by Knoch, under the name of *unicolor*; supposing it to be the same with that of Fabricius, and on his authority, I retained the appellation in my "Descriptions of the Carabici and Hydrocanthari;" but after the publication of that paper, being induced to examine the descriptions of Fabricius, and Olivier, I perceived at once that the *unicolor* of Knoch, was not that of those authors. Under this impression, I sent the insect to Count Dejean, under a new name, which he adopted.

I have been thus particular in this statement, in order to record an opinion which I have always entertained, and which every observation tends to confirm. That it is of no consequence whatever, who gives a new name, either in a catalogue or letter, or attached to the insect in his cabinet, or elsewhere; but as it is the describer that incurs the responsibility, his name only ought to be quoted with that of the insect, or other object described by subsequent naturalists.

Under the operation of this principle, the present species is the *C. viduus*, Dejean.

The upper figure of the plate.

SPHÆRODERUS.

GENERIC CHARACTER.

Head narrower than the thorax; external maxillary and labial palpi, with the last joint dilated, securiform, compressed; labrum elongated, profoundly emarginate; labium very large, profoundly emarginate, not wider at base than at tip; mandibles elongated, narrow, bidentate near the tip; the thorax rounded, not elevated on the sides, nor extended behind; abdomen robust, convex; elytra entire, not divided at the suture, carinate each side, embracing the sides of the abdomen; tarsi with the three basal joints, in the male, dilated.

PLATE 45.

OBSERVATIONS.

The present group was separated from CYCHRUS, by Count Dejean, who remarks, that at first view, they resemble some small species of CARABUS, and particularly the *convexus*; that in comparison with the true species of the genus CYCHRUS, the head is a little less elongated, the antennæ a little shorter, and the thorax, instead of being cordate, is rounded, oval or orbicular, convex, not elevated on the sides, nor behind; the first and second joints of the anterior tarsi in the male, are much dilated, the first, truncate-triangular; the second, quadrate broader than long; the third is less dilated, cordate.

The word SPHÆRODERUS, is derived from the Greek words σφαῖρα, sphere, and Δέρον, neck, in allusion to the form of the thorax.

PLATE 45.

SPHÆRODERUS STENOSTOMUS.

SPECIFIC CHARACTER.

Black; elytra dark cupreous, basal thoracic lines distinct.

SYNONYMS.

CYCHRUS STENOSTOMUS. *Weber. Obs. Ent.* p. 43.

Knoch, neue Beytr. p. 190, pl. 8, f. 13.

Schonh. Syn. p. 166.

Nobis. Trans. Amer. Philos. Soc. (new series) vol. ii. p. 72.

SPHÆRODERUS STENOSTOMUS. *Dejean, Spec. Coléopt.* vol. ii. p. 15.

DESCRIPTION.

Head black, glabrous, impunctured: *antennæ* brownish towards their tips: *thorax* black, tinged with blue, rounded, widest in the middle, contracted behind; base narrower than the elytra, punctured; basal edge rectilinear; dorsal line very distinct; basal lines profoundly impressed, obtuse, punctured: *elytra* dark cupreous, striae numerous, obtuse; interstitial lines narrower

than the striæ, obtuse; edge dark blue; humeral edge not dilated nor reflected: *epipleura* punctured: *pectus* punctured at base: *postpectus* and *venter* each side at base, punctured.

OBSERVATIONS.

This species is not uncommon in Pennsylvania. I have also received a specimen from Mr. Charles Pickering, taken in Massachusetts.

The left figure of the plate.

SPHÆRODERUS BILOBUS.

SPECIFIC CHARACTER.

Violaceous; beneath black; margins not reflected; basal thoracic lines obsolete.

PLATE 45.

SYNONYMS.

CYCHRUS BILOBUS. *Nob. Trans. Amer. Phil. Soc. (new series)* vol. ii. p. 73.

SPHÆRODERUS BILOBUS. *Dejean, Spec. Gén. Coléopt.* vol. ii. p. 16.

DESCRIPTION.

Body beneath black: *head* black, with a slight violaceous tint: *antennæ* and *palpi* pale piceous: *thorax* cupreous-violaceous, polished, broadest rather before the middle, much narrowed behind; lateral margin not dilated nor reflected; base depressed and much punctured; basal lines obsolete; basal edge rectilinear, not wider than the pedicle of the postpectus; disk somewhat bilobated, being convex each side, and gradually indented in the middle by the dorsal line; anterior margin depressed, and rugose in the middle: *elytra* cupreous-violaceous, striæ numerous, punctured: *pectus* beneath, *postpectus* and *abdomen* each side, punctured.

PLATE 45.

OBSERVATIONS.

This is somewhat smaller than the *stenotomus*, from which it is very distinct, and is the most brilliant species we have. I have not yet met with it in the Atlantic states. The first specimen was obtained in Missouri, and I caught another in the North-Western Territory, when travelling over that region with Major Long's party.

The right figure of the plate.

SCAPHINOTUS.

GENERIC CHARACTER.

Head narrower than the thorax; external maxillary, and labial palpi, with the last joint dilated, compressed, securiform; labrum elongated, profoundly emarginate; labium very large, profoundly emarginate, not wider at base than at tip; mandibles elongated, narrow, bidentate near the tip; thorax with the lateral margins reflected, posterior angles extended; elytra entire.

PLATE 45.

not divided at the suture, prominently carinate each side, and embracing the sides of the abdomen; tarsi with the three basal joints of the anterior feet a little dilated in the male.

OBSERVATIONS.

Separated by Latreille, from the genus CYCHRUS, and consisting as yet, of a single species only, though Dejean supposes that the CYCHRUS *unicolor* of Fabricius, will constitute a second species, but the latter does not appear to be at present known to entomologists. This genus is most closely allied to CYCHRUS and SPHÆRODERUS, but particularly to the former; the thorax, however, is of a different form, and the anterior tarsi of the male are a little dilated.

We remarked in our Preface, p. vi. that “care has been taken that species of different genera be not represented in the same plate.” It seems therefore proper, that we should state the reason why we have not complied with this intention in the annexed plate, where three genera are introduced. That plate was engraved before the author left Philadelphia, on a visit to New-Harmony, Indiana, his present residence,

and it was only a few months since, that he received the second volume of Dejean's *Species Général des Coléoptères*, published last year, in which the distinguished author has reformed the genus *CYCHRUS*. But as the object of that intention was, that the work might be "bound up, when completed, agreeably to systematic order in the succession of genera," the author conceives that no disadvantage can ever arise from this circumstance, as these genera are so closely allied, that it seems hardly possible, any future discovery shall disturb their proximity.

SCAPHINOTUS ELEVATUS.

SPECIFIC CHARACTER.

Blackish; elytra violaceous-cupreous, polished; hardly narrower behind.

PLATE 45.

SYNONYMS.

CARABUS ELEVATUS. *Fabr. Ent. Syst.* i. p. 132.

Oliv. Ins. vol. iii. p. 46, pl. 7, fig. 82.

Oliv. Enc. Meth. (*Carabe*) p. 334.

Linn. Syst. Nat. Gmel. p. 1967.

CYCHRUS ELEVATUS. *Fabr. Syst. Eleuth.* i. p.

166.

Knoch, neue Beytr. p. 188, pl. 8, fig. 12.

Latr. Hist. Nat. 8, p. 289.

Nob. Trans. Amer. Philos. Soc. vol. ii.

(*new series*) p. 71.

Schonh. Syn. p. 166.

SCAPHINOTUS ELEVATUS. *Dejean, Spec. Gén.*

vol. ii. p. 17.

DESCRIPTION.

Head black, very slightly tinted with violet, impunctured: *antennæ* brownish towards the tips: *thorax* black, slightly tinted with violaceous, the sides gradually more reflected to the hind angles, hardly contractly behind; disk concave, with small, numerous, irregular, punctures; base nearly as broad as the base of the elytra; basal angles prominent, acute: *elytra* violaceous-cupreous, brilliant; *striæ* numerous.

PLATE 45.

obtuse; intervening lines narrower than the striæ, obtuse; humeral edge dilated, reflected, elevated, and rounded: *epipleura* confluently punctured: *pectus* with a few punctures at base; lateral margin with minute punctures: *postpectus* and *venter*, each side at base, with large punctures.

OBSERVATIONS.

This species was supposed, by all the authors, previous to Knoch, to be a native of South America, but that entomologist determined its native country, by receiving specimens from the late Dr. F. V. Melsheimer, of Hanover, Pennsylvania.

The lowest figure of the plate.

PLATE 45.



MALACHIUS.

GENERIC CHARACTER.

Body furnished with cocardes; head retracted to the eyes within the thorax; antennæ ten-jointed, filiform, serrated; mandibles emarginate; labium entire; palpi filiform; tarsi simple, nails with a tooth beneath; elytra flexible.

OBSERVATIONS.

Linneus referred these insects to his genus *CANTHARIS*; from which his learned successor, Fabricius, separated them, and constituted a group under the present name, derived from the Greek word *μαλακός*, which means *soft*, *delicate*, in allusion to the consistence of the body. They differ from the genus *DASYTES*, Payk. in being less elongated, and furnished with the *cocardes*, their antennæ also are placed nearer together at base; otherwise the two genera are closely allied.

These insects are frequent in some situations on flowers, the nectareous juices of which they

appear to extract, though it has been asserted, but we know not upon what authority, that in addition to their liquid food they prey also upon insects.

When alarmed for their safety, the *cocardes* are suddenly protruded, and when reassured of security, these singular organs are retracted, so that no remnant of them remains in view. The *cocardes* are three-lobed bodies, of a vivid red colour, and vesicular consistence, situated one on each side near the anterior angles of the thorax, and another on each side at the base of the abdomen. Their uses are altogether unknown, but we cannot suppose them to be of primary importance, since one, and indeed all of them have been cut off without diminishing the agility of the insect, or subjecting it to any apparent inconvenience. Like the retractile cervical appendage of the larvæ of PAPILIONES, it may possibly serve to repel their enemies. Olivier supposes that the larvæ of the MALACHIUS live in wood. Latreille informs us that in some of the species one sex has an appendice at the tip of each elytrum, in the shape of a hook, which is seized by the mandibles of the opposite sex, in order to arrest the fugitive.

MALACHIUS BIPUNCTATUS.

SPECIFIC CHARACTER.

Thorax rufous, with two remote black spots; elytra blue; abdomen sanguineous.

SYNONYM.

M. BIPUNCTATUS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 185.

DESCRIPTION.

Head black, with a slight greenish tinge; all before a line drawn between the anterior canthi of the eyes, including the antennæ, yellow; *mandibles* and *terminal joints* of the *palpi* black; *thorax* yellowish-rufous, with two small, remote, rounded black dots; posterior submargin somewhat indented: *elytra* blue or greenish: *pectus* rufous: *postpectus* and *feet* black: *abdomen* sanguineous.

PLATE 48.

OBSERVATION.

This fine species is an inhabitant of the Arkansas region, near the Rocky Mountains, where I captured two specimens. In magnitude it exceeds any other North American species yet known. The second joint of the antennæ in the male is dilated and irregular.

The lowest figure of the plate.

MALACHIUS TRICOLOR.

SPECIFIC CHARACTER.

Head, postpectus, and feet black; labrum and thorax rufous; abdomen rufo-testaceous.

SYNONYM.

M. TRICOLOR. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 182.

PLATE 48.

DESCRIPTION.

Head black: *labrum*, *clypeus* on its anterior margin and *palpi* at base, pale rufous: *antennæ* pale rufous, dusky at tip: *thorax* transverse, nearly oval, rather short, rufous, immaculate: *elytra* dark bluish-green, or somewhat violaceous; middle of the lateral edge obsoletely piceous: *postpectus* and *feet* deep black: *venter* testaceous.

Variety, *a*. Elytra blue; venter and thorax sanguineous.

OBSERVATIONS.

This species was taken on the Mississippi, and specimens also occurred near the Rocky Mountains. It is as large as *M. 4—maculatus*, Fabr., and larger than *M. thoracicus*, Fabr., which it much resembles. The variety was sent me from Massachusetts by Mr. Charles Pickering.

The right figure of the plate.

PLATE 48.

MALACHIUS NIGRICEPS.

SPECIFIC CHARACTER.

Thorax rufous, with a large black spot; elytra blue; venter sanguineous.

SYNONYM.

M. NIGRICEPS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 183.

DESCRIPTION.

Head deep black, pale testaceous or rufous before: *thorax* rufous, with a large black spot, sometimes composed of two, dilated, confluent ones, and not attaining the anterior margin: *elytra* violaceous, blue, or greenish: *pectus* rufous, at the origin of the feet black: *postpectus* black: *feet* black: *thighs* sometimes rufous, particularly the anterior ones: *venter* sanguineous.

Variety, *a.* Thorax entirely black.

PLATE 48.

OBSERVATIONS.

Distinguishable from the *tricolor* by the black spot of the thorax, and by the proportion of this part, which is comparatively longer than in that insect. Its antennæ present the remarkable character of the dilatation and irregularity of the second joint of the antennæ.

The upper middle figure of the plate.

MALACHIUS VITTATUS.

SPECIFIC CHARACTER.

Thorax rufous, with a large black spot; elytra blue, margin and suture rufous.

SYNONYM.

M. VITTATUS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 184.

PLATE 48.

DESCRIPTION.

Head black; *labrum* and base of the *antennæ* rufous: *thorax* rufous, with a dorsal black spot composed of two confluent ones, not reaching the anterior margin: *elytra* bright greenish-blue; exterior margin, suture, and tip rufous; this colour is a little dilated behind the humerus: *pectus* rufous; about the base of the feet black: *postpectus* and *venter* black, incisures of the latter edged with testaceous: *feet* black; anterior pairs of tibiæ often piceous.

OBSERVATIONS.

This species is somewhat smaller than *M. quadrimaculatus*. It is closely allied to *M. tricolor*. The second joint of the antennæ of the male is dilated and irregular. Mr. Thomas Nuttall first obtained specimens of the *villatus* in the Mississippi region, where I have since met with it.

The upper figure of the plate.

PLATE 48.

MALACHIUS OTIOSUS.

SPECIFIC CHARACTER.

Thorax rufous, with a dilated longitudinal line: antennæ and elytra black.

SYNONYM.

MALACHIUS NIGRIPENNIS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 184.

DESCRIPTION.

Body black, inconspicuously hairy: *head* with three obtuse indentations between the eyes; *antennæ* black; *labrum* and *clypeus* before, rufous: *thorax* rufous, with a much dilated black line from the anterior to the posterior edge: *elytra* black, with a very slight violaceous tinge: *pectus* pale rufous, or testaceous; origin of the feet black: *postpectus* black: *venter* black, segments with more or less dilated, sanguineous margins; sometimes entirely sanguineous: *feet* black; *anterior thighs* sometimes pale.

OBSERVATIONS.

This species is readily separable from *M. nigriceps* by its inferior size and blackish elytra and antennæ, and by the circumstance that the black line of the thorax is continued to the anterior edge.

Count Dejean informs me the name *nigripennis* is preoccupied in this genus; I have therefore been compelled to change it.

The lower middle figure.

PLATE 48.



INULSIUM L. M. TAT



BOLETOPHAGUS.

GENERIC CHARACTER.

Body very rough, oval, convex; head rather large, without a neck; eyes almost bisected by the prominent margin; antennæ arcuated, inserted beneath the margin, thicker towards the tip; mandibles destitute of a horny nail; palpi filiform, terminal joint of the maxillaries cylindrical: thorax transverse, as broad as the elytra, the anterior angles projected forwards: scutellum small, rounded: elytra covering the tergum.

OBSERVATIONS.

In consequence of the rough unequal character of the surface of these insects, their appearance is repulsive to the common observer, but in the estimation of an entomologist, their claims to his attention are in no respect diminished by any supposed departure from a particular standard of beauty. They have been referred by the different authors to the genera *OPATRUM*, *TROX*, *DIAPERIS*, and even *SILPHA* and *HISPA*. But

PLATE 51.

Latreille, perceiving that their generic characters were not conformable to any group already existing in the system, separated them under the name of ELEDONA. This name ought to have been adopted, having the unalienable right of priority over that of BOLETOPHAGUS, subsequently applied by the justly celebrated Illiger. But as the present designation is preferred by Fabricius, Dejean, Leach, and the German entomologists, we for the present acquiesce in the use of it. The species frequent fungi, whence the generic name *Βολίτης*, *boletus*, and *φαγῶν*, *I eat*.

BOLETOPHAGUS CORNUTUS.

SPECIFIC CHARACTER.

Thorax with two slightly incurved horns, which are hairy beneath.

PLATE 51.

SYNONYMS.

OPATRUM BIFURCUM. *Fabr. Supp.* p. 40.

OPATRUM CORNUTUM. *Panz. Faun. Amer. Bor.*
Prodr. pl. 1, fig. 5, *a b*, and fig. 6, *a b*.

BOLETOPHAGUS CORNUTUS. *Fabr. Syst. Eleuth.*
vol. i. p. 112. *Schonh. Syn.* vol. i. p. 120.

ELEDONA CORNUTA. *Latr. Hist. Nat. Crust.*
et Ins. vol. x. p. 312.

DESCRIPTION.

Body brown: *head* with a few small tubercles; and on the anterior edge an elevated, double, acute horn: *thorax* irregularly granulated, with two prominent, porrect, incurved horns, slightly dilated at tip, hairy beneath, and rather longer than the head; lateral edge denticulated: *elytra* with elevated, abbreviated lines and tubercles; at tip somewhat abruptly deflected.

FEMALE, destitute of the elevated double horn on the anterior edge of the clypeus: *thorax* with two elevated tubercles, vertical and truncated.

PLATE 51.

OBSERVATIONS.

This species frequently occurs in various parts of the United States, in fungi. It is very distinct from any other known insect of the genus. The thoracic processes, as well as that of the head, afford very good and striking characters. We have never been so successful as to obtain the above quoted work of Panzer, and we therefore refer to it through other authors.

The two upper figures of the plate represent the male in different positions.

The lower right figures exhibit the female. The lines show the natural length.

BOLETOPHAGUS CORTICOLA

SPECIFIC CHARACTER.

Head and thorax unarmed; elytra with elevated, abbreviated lines and tubercles.

PLATE 51.

DESCRIPTION.

Body brown: *head* slightly granulated; anterior edge a little reflected, and very slightly emarginate at tip: *thorax* granulated, and somewhat canaliculate; lateral edge denticulated; posterior angle an obtuse spire: elytra with regular series of elevated, interrupted lines, and alternating with series of elevated tubercles.

OBSERVATIONS.

For this species I am indebted to Dr. John F. Melsheimer, who sent me several specimens under the name which I have adopted. He informs me that it was caught in Virginia, in October, under the bark of the pine.

The lower left figures of the plate represent the species in two positions. The line shows the natural length.

PLATE 51.



LYC. NAT. HIST. N. Y.



CLYTUS.

GENERIC CHARACTER.

Body elongated, subcylindric; head inclined; antennæ shorter than the body, inserted in an emargination of the eyes, eleven-jointed; labrum apparent; labial palpi with the last joint obtri-gonate; thorax globose, unarmed; hind thighs clavate.

OBSERVATIONS.

A genus somewhat numerous in species, belonging to the natural family CERAMBYCIDÆ, Leach. The species were scattered in the genera CERAMBYX, CALLIDIUM, and SEPTURA, until Fabricius perceived the necessity of a separation, and he embodied them under the present designation. Many of them are very prettily ornamented with bright yellow bands and spots. In the larva state they live in wood, penetrating freely through the hardest trees, and proving very injurious to the particular kinds of timber which they attack.

PLATE 53.

CLYTUS SPECIOSUS.

SPECIFIC CHARACTER.

Black ; thorax dilated ; elytra about five-banded ; feet yellow.

SYNONYM.

C. SPECIOSUS. *Nobis. Long's Second Expedition*, vol. ii. p. 290.

Body deep black ; *head* with a band passing from the vertex round behind the eyes, and meeting a band which is round the mouth above, yellow ; a yellow band on the front, immediately above the antennæ, terminating in the sinus of the eyes ; *mandibles* yellow ; *nasus* and *labrum* pale yellowish, glabrous ; *antennæ* all black : *thorax* subglobular, depressed ; an oblique spot each side before, and another oblique, longer spot or abbreviated line each side of the middle, yellow ; an arcuated, impressed

line each side of the middle; *scutel* yellow; two small yellow spots before the scutel, under the thorax: *elytra* with yellow bands; the first band forms a regular arch, of which the scutel represents the key-stone; the second band is in the form of the letter W, each V receiving a termination of the first band; the third band is nearly transverse, placed upon the middle; fourth band arcuated each side from the suture obliquely backward, parallel and near to a large terminal spot or band, which on each elytrum is ovate, with a central black spot; tip with a short obtuse tooth; *humerus* with three small spots: *postpectus* spotted with yellow: *thighs* with a brown line on the inner side: *venter* yellow.

OBSERVATIONS.

During a short repose of Major Long's party on the bank of the Wisconsin river, preparatory to crossing that stream, this unusually fine insect attracted the eye of that officer, as it rested on the bark of a hickory tree. Another specimen belongs to the Philadelphia Museum, probably taken in Pennsylvania. As these two are the

only individuals that have yet occurred, the species must of course be considered as rare.

The upper figure of the plate.

CLYTUS HAMATUS.

SPECIFIC CHARACTER.

Black; thorax with a yellow margin; scutel, two bands, and elytral spot, yellow.

SYNONYM.

C. HAMATUS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 423.

DESCRIPTION.

Body black: *antennæ* rufous, filiform; terminal joints black; *palpi* piecous: *thorax* hairy; the hairs cinereous; margin yellow, which colour is interrupted behind: *scutel* yellow: *elytra* slightly hairy at base; each with an oval, oblique spot near the basal middle; then a sub-

PLATE 53.

sutural line proceeding from near the basal spots to the sutural middle, thence it curves over the disk, and terminates in a small spot rather before the middle on the exterior margin; an oblique line behind the middle passes from the suture outward; all these bands and spots are yellow; disk near the tip obsoletely obscure fuscous; the tip rounded, unarmed; *beneath* spotted and banded with yellow: *feet* rufous: *thighs* at tip dilated, compressed, black.

OBSERVATIONS.

Has some resemblance to *C. ARIETES*, Fabr., of Europe, but besides other points of distinction, the elytra are not remarkably truncated as those of that species are. It seems also to be allied to *C. ARVICOLA* and *AURICOLA*, Oliv., and particularly to the latter, from which, however, it may be distinguished by its larger size, by having the thorax nearly surrounded by a yellow line, and by the obliquity of the terminal band of the elytra. I obtained it near the Illinois river.

The lower figure of the plate.

PLATE 53.

CLYTUS UNDULATUS.

SPECIFIC CHARACTER.

Brown; thorax sub-bifasciate; elytra with a spot and three bands, yellow.

SYNONYM.

C. UNDULATUS. *Nobis. Long's Second Expedition*, vol. ii. p. 291.

DESCRIPTION.

Body dark brown: *head* darker than the elytra; *antennæ* dark ferruginous; *front*, below the antennæ, bilineate with pale yellow: *thorax* darker than the elytra, rough with minute spines and hairs; anterior and inferior margins yellow, interrupted above; basal margin with a transverse yellow spot each side: *elytra* with a transverse spot on each near the base; an undulated narrow band across the middle, rising along the suture nearly to the scutel; an undulated transverse band behind the middle, and

a terminal band: *postpectus* with the incisures margined with yellow: *venter*, having the segments margined with yellow.

OBSERVATIONS.

I caught the two sexes of this species in the Northwest Territory, when traversing that part of the Union with Major Long's party. It seems to have some resemblance to the *C. MUCRONATUS*, Fabricius, of South America; but the elytra are not mucronate, and the markings of the superior surface of the body are different.

The right figure of the plate.

CLYTUS CAPREA.

SPECIFIC CHARACTER.

Fuscous; thorax with the anterior edge, yellow; elytra with four bands and tip, yellow.

PLATE 53.

SYNONYM.

C. CAPREA. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 424.

DESCRIPTION.

Body blackish, hairy: *head* immaculate; *antennæ* short, dull rufous: *thorax* very hairy; a longitudinal series of transverse, abbreviated, elevated lines, of which the anterior one is much more elevated; a yellow line on the anterior edge, interrupted on the side: *scutel* small, black: *elytra* dark brown, blackish towards the base; four bands and tip yellow; the first and second bands on each elytrum are united in the form of a circle, only interrupted by the prominent humerus; third band central, and representing a common M; fourth band drawn obliquely backward from the suture; *tip* emarginate, a prominent spine at the exterior angle: *abdomen* and *posterior portion* of the *pospectus* fasciate with bright yellow sericeous hair: *feet* hairy, rufous, or blackish; posterior pair elongated; *thighs* dilated, mucronate at tip.

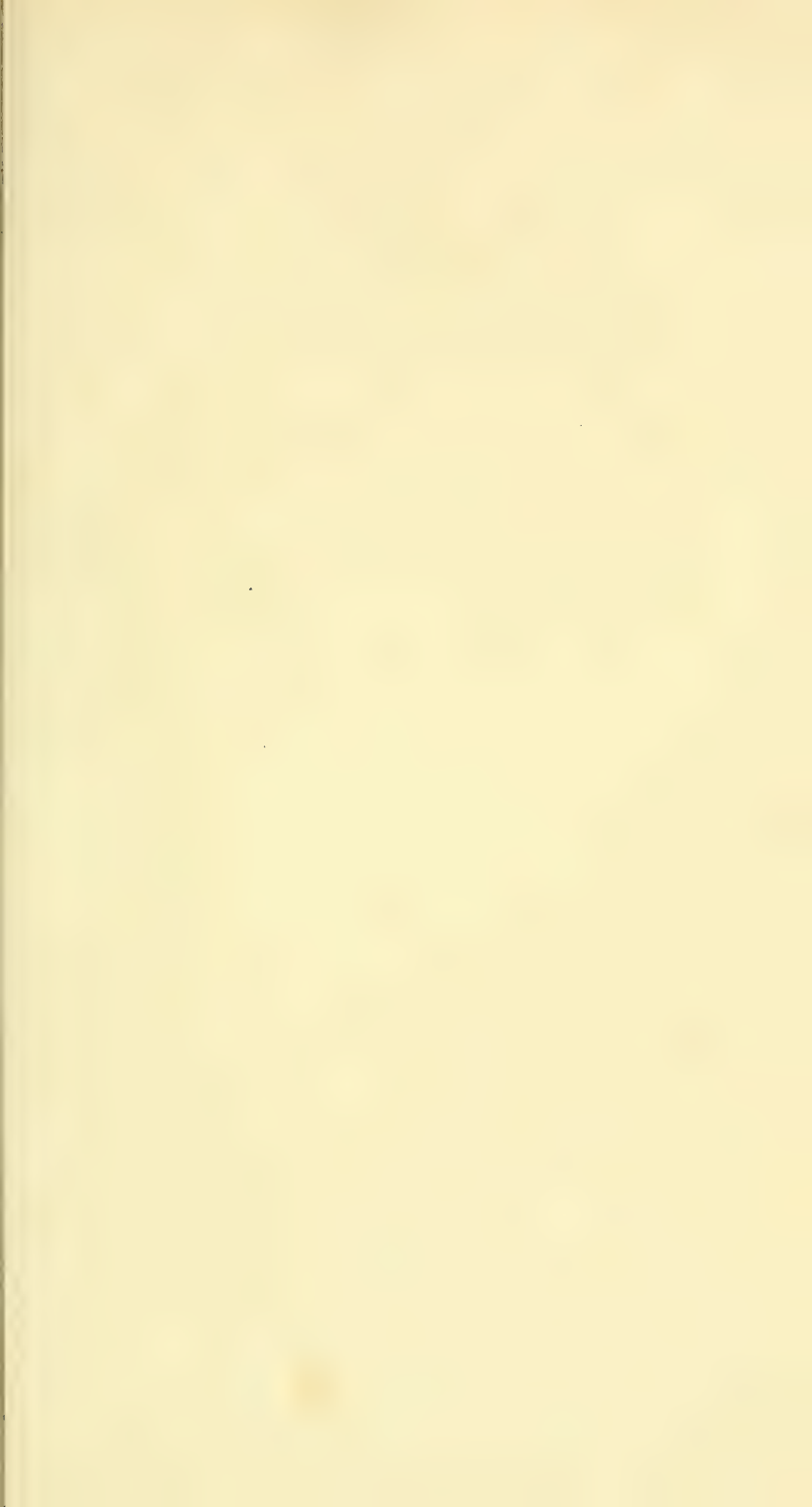
PLATE 53.

OBSERVATIONS.

A handsome species, easily distinguished from others by the rugous thoracic line, combined with the O O at the base of the elytra. It inhabits this state, and Mr. T. Nuttall presented me with many specimens which he found in Arkansaw. The bands of the elytra are sometimes white.

The left figure of the plate.

PLATE 53.





ACRYDIUM.

GENERIC CHARACTERS.

Thorax elongated behind, often longer than the abdomen; elytra very small; pectus with a cavity for the reception of the inferior part of the head; tarsi three-jointed, destitute of pulvilli; antennæ thirteen or fourteen jointed, not half the length of the body; oviduct not exerted; posterior feet formed for leaping.

OBSERVATIONS.

This genus was established by Fabricius under the name which, with Thunberg, I have adopted. Linné included the species in his genus *GRYLLUS*. Lamarck distinguished them by the name of *ACHETA*, and Latreille by that of *TETRIX*. The species are nearly all small, and several are common. They may be very readily distinguished from “grasshoppers” of other genera, by the remarkable elongation of the thorax, which is continued backward so as to cover the abdomen wholly or in great part.

ACRYDIUM ORNATUM.

SPECIFIC CHARACTER.

Whitish; beneath fuscous; thorax nearly as long as the wings, spotted with black.

DESCRIPTION.

Head blackish; *vertex* with an elevated longitudinal line, which extends down over the front where it is grooved, but this groove does not reach the acute ridge which divides the vertex from the front; *thorax* flattened, somewhat granulated and whitish, laterally projecting a little over the origin of the hemelytra, a slightly elevated longitudinal central line, and two abbreviated oblique elevated lines near the head; a velvet black spot each side over the tip of the hemelytra: *pleura*, *hemelytra* and *pectus* black-brown.

Length to the tip of the wings, half an inch.

OBSERVATIONS.

I am indebted to Mr. Lesueur for this illustration.
PLATE V.

resting species, which he caught at Kaign's Point, in the vicinity of Philadelphia. The insects of this genus vary much in their sculpture, size and colour, which renders it difficult to distinguish the species, of which we seem to have several. In the above description I have purposely avoided a minute detail of colours and markings, noting such only as will probably prove to be permanent, or nearly so, and characteristic of the species.

The left hand figures of the plate ; natural size and magnified.

ACRYDIUM LATERALE.

SPECIFIC CHARACTER.

Pale brownish-testaceous, with a lateral broad fuscous line ; thorax shorter than the wings.

DESCRIPTION.

Vertex with an elevated longitudinal line, commencing near the tip, and extending down over

PLATE V.

the front, where it is canaliculate the whole length, and terminating beneath the antennæ: *antennæ* reddish-brown, blackish at tip: *thorax* flattened, with small longitudinal lines or wrinkles, and a more obvious, continuous, elevated central line, extending the whole length: *wings* brown on the anterior margin towards the tip, and extending at least the twentieth of an inch beyond the thorax: *pleura* with a dilated blackish-brown line or vitta, beginning at the eye, and including the abdomen above and each side: *feet* brown, more or less annulated with pale: *venter* pale yellowish or testaceous.

Length to the tip of the wings, nine-twentieths of an inch.

OBSERVATIONS.

I obtained this insect in Georgia and East Florida, where it is not uncommon.

The upper and right figures of the plate: natural size and magnified.

PLATE V.



LYC. NATHUSIENY.



GRYLLUS.

GENERIC CHARACTER.

Antennæ filiform, with from twenty to twenty-five joints; hemelytra and wings deflected, the latter large, much folded; posterior feet formed for leaping, hardly longer than the body; tarsi three-jointed; oviduct not exerted; stemmata unequidistant.

OBSERVATIONS.

Insects of this genus are well known to every person in this country by the familiar and characteristic name of "grasshoppers." They are in some seasons very abundant, and become an inconvenience to the farmer, by devouring his grasses and other vegetable productions. But their increase here is always limited, so that, even when most numerous, a great portion of the crop is saved. There are countries, however, where this is not the case, and we have only to inform the reader, that the *migratory locust* is one of the members of this genus, to apprise him

of their formidable character. "Of all the insects which seem capable of adding to the calamities of the human race, locusts seem to possess the most formidable powers of destruction. Legions of these voracious animals of various species are produced in Africa, where the devastation they commit, is almost incredible. The air is darkened by their numbers; they carry desolation with them wherever they pass, and in the short space of a few hours, are said to change the most fertile provinces into a barren desert." During their migrations in search of food, they move in immense dense masses, which resemble huge thunder or hail clouds, and at the termination of their career, every leaf is soon devoured, and the atmosphere is finally loaded with putrid exhalations from their dead bodies, producing pestilence in the train of a general famine, which is the consequence of their voracity.

Swarms of these animals have appeared in various parts of Europe, from Tartary, and small flights have made their way even into England. A species of this genus occasioned so much destruction in some parts of Europe, that in the year 1813, the French government issued decrees with a view to occasion the destruction of the larvæ. Although the thickly settled parts of the United

States are altogether unacquainted with the scourge of any species of migratory locust, yet we shall have occasion at a future time, to speak of several species found within the limits of our territory, that have already proved a very serious evil.

There seems to be little doubt, that a species, probably the *G. migratorius*, constituted one of the plagues of Egypt mentioned in the Bible; and that John the Baptist was compelled to use them for food during his sojourn in the wilderness.

Even at the present day, the inhabitants of divers countries of Africa, make great use of these destructive insects for food. For this purpose, the insect requires but little preparation, and we believe the hemelytra and wings are always rejected, whether it is to be eaten fresh, or salted. In the latter state, they are constantly exposed for sale in the markets of the Levant, and they are known to be a considerable article of commerce in that region.

Many travellers assure us that they constitute an agreeable food; according to Shaw, when fried with a little salt, they have the taste of the Cray-fish, a crustaceous animal like a miniature lobster, abounding in our fresh water streams.

Some of the Arabs are stated by Niebuhr, to preserve large quantities of these insects in the dried state, for winter consumption.

The GRILLI feed exclusively on vegetables. They fly with a considerable strength of wing, and some species make a noise when they poise themselves in the air, previously to alighting, by striking the hemelytra together. During their several changes, they continue active and voracious, and their gait is always either a leap or a walk. In the larva state, they are destitute of any appearance of wings or hemelytra, but on changing to the pupa, they gain the rudiments of those members, to be completely developed at the next change.

GRILLUS FORMOSUS.

SPECIFIC CHARACTER.

Thorax with a much elevated, compressed, and denticulated carina.

PLATE XXXIV.

DESCRIPTION.

Body pale green: *antennæ* yellowish: *thorax* armed with numerous small denticles, above compressed, very much elevated into a regularly arcuated carina, forming a portion of a circle, the centre of which, is anterior to the origin of the hemelytra; carina with two yellow radii, and yellow posterior and anterior edges; posterior half of the edge, prominently denticulated: *hemelytra* with about six large brown spots, with pale areolæ, placed 2, 2, 2: *posterior thighs* annulate, with yellow.

OBSERVATIONS.

When returning with a detachment of Major Long's party, at the distance of about an hundred and fifty miles from the mountains, on the banks of the Arkansaw river, I had the pleasure to find a considerable number of this uncommonly beautiful species. It occurred only in a very limited district, and was not afterwards seen.

The middle figure, with a wing above on the left.

GRYLLUS HIRTIPES.

SPECIFIC CHARACTER.

Head conic, posterior segment of the thorax elevated into a carina.

DESCRIPTION.

Body pale green: *head* above conic, elevated, with dark green lines: *antennæ* red: *thorax* varied with dark green; posterior segment compressed above, and elevated into a prominent, arcuated, mutic carina: *hemelytra* with large, confluent, dark green spots: *feet* hairy; posterior tibiæ densely hairy.

OBSERVATIONS.

A curious species, of which the conic head gives it the air of a *TRUXALIS*, but the antennæ are not ensiform, neither are the posterior thighs elongated, as in that genus. The anterior seg-

ment of the thorax is altogether destitute of any appearance of carina.

It occurred with the preceding.

The upper figure, with a wing below on the right.

GRYLLUS TRIFASCIATUS.

SPECIFIC CHARACTER.

Hemelytra trifasciate with fuscous; wings pale yellow at base, with a fuscous band.

DESCRIPTION.

Head green: *antennæ* blackish, first and second joints pale; triangular space between the eyes, brown, extending in a curved line backwards and downwards: *thorax* greenish-brown, above depressed, on the two anterior segments, an inconspicuous, hardly elevated, longitudinal line: *hemelytra* pale dull yellowish, at base brownish, nervures at tip, dusky; three equidistant broad brownish-black bands, the intermediate one on

the middle: *wings* pale yellow, with a slight tinge of green; a broad brownish black band, narrowed and marginal behind; tip dull whitish, with the nervures blackish: *posterior thighs* dull yellowish, with a black band on the middle, on the inner side, extending broadly towards the base; tip blackish: *posterior tibiæ* bright fulvous.

OBSERVATIONS.

This pretty insect occurred in Arkansaw, at the distance of about three hundred miles from the Rocky Mountains.

The lower figure.

PLATE XXXIV.

SPECTRUM.

GENERIC CHARACTER.

Body elongated, slender, cylindrical; head slightly inclined, oval; antennæ long, slender, with numerous joints, inserted before the eyes; palpi cylindrical, short; labium quadrifid, the two inner divisions shortest; feet simple, the anterior pair being similar to the others; tarsi five-jointed; elytra very short or none.

OBSERVATIONS.

We are told that there was a time, when a piece of wood was transformed into a serpent, and even in the present age of knowledge, a hair fallen from the mane or tail of a horse into a stream of water, is believed by many to become animated into a distinct being; dead leaves shed by the parent tree are said to change gradually into animals of singular shape, and to have changed their place of abode under the eye of the historian who related the wonderful tale;

dead sticks also were said to sprout legs, to move from place to place, and perform all the functions of a living body. These, and a thousand other equally ridiculous tales, were at one period or another, more or less generally admitted as indisputable truths, and to contradict them would only be to expose oneself to the imputation of ignorance or criminal faithlessness. And although at present the possibility of making a living serpent out of wood, and the story of animated leaves and sticks would be despised as absurd, yet many are to be found, both in Europe and America, who firmly believe in the reanimation of a horsehair. But the most obvious errors have often a shadow of truth whereon to rest, or palliate, if not excuse them by the plea of ignorance or mistake. The historian of the walking leaf may have been deceived by the *MANTIS siccifolium* of Linné, the wings of which have some resemblance to a leaf. The *GORDIUS* resembles a horsehair, and no doubt gave rise to the story of the metamorphosis above mentioned, and the account of the walking sticks may have very honestly originated from the singular appearance and form of some insect of the present genus. These are long, slender and cylindrical; and on a first view it is not a little

PLATE 37 & 38.

difficult to reconcile their appearance to our preconceived ideas of the general insect form. They are nevertheless perfectly inoffensive, and feed altogether on vegetables. They are, probably, indebted for safety from the attacks of their enemies the birds, to their deceptive appearance, and by their general similarity in point of colour to the object on which they rest.

PLATE 37 & 38.

SPECTRUM FEMORATUM.

SPECIFIC CHARACTER.

Apterous; intermediate thighs dilated, angulated, and with the posterior thighs armed with a spine near the tip beneath.

DESCRIPTION.

MALE. *Body* greenish-brown, without any rudiment of hemelytra: *head* yellowish with three dilated fuscous vittæ; *antennæ* brown: *anterior thighs* unarmed, simple, bright green; *tibia* dull green, tip and tarsus testaceous; *intermediate thighs* dilated, angulated, pale ochreous, annulated with brown, the inferior angulated lines slightly serrated; a prominent, piceous, acute, robust spine beneath near the tip; *tibiæ* greenish, slightly serrated on the inner side; *tarsus* testaceous; *posterior thighs* brownish, ochreous, with a prominent, piceous, acute, robust spine near the tip beneath.

FEMALE. *Body* cinereous, more robust than that of the male, *thighs* nearly equal, inter-

mediate and posterior pairs with the subterminal spines very short.

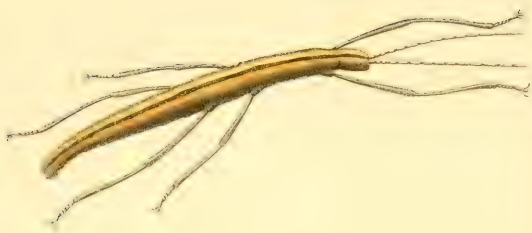
OBSERVATIONS.

I first published an account of this species in "Long's second Expedition," from a male specimen obtained near the Falls of Niagara on a Hickory tree. I had previously found an individual in Missouri, and recently on a journey with Mr. Maclure, I found several specimens on the sheltered face of a rock at Franklin, New Jersey; amongst these was the female which we now make known.

Since the above was written, Mr. Charles Pickering, of Salem, Massachusetts, has informed me that he obtained an individual near that city.

The left figure of the plate represents the male.

The right hand figure, the female.



XINSHIJI
1994.10.10



SPECTRUM BIVITTATUM.

SPECIFIC CHARACTER.

Brown or blackish, with two yellow dorsal vittæ.

DESCRIPTION.

MALE. *Body* above black, with two broad yellow vittæ extending from the base of the antennæ to the posterior extremity of the body: *antennæ* dull reddish-brown, not much elongated: *beneath* dull yellowish clay colour: *feet* dusky, thighs unarmed, blackish towards the tip.

FEMALE, much larger than the male, the body brownish in those parts which on the male are black, with the exception of the vertebral line which is black; the yellow vittæ become sometimes obsolete towards the posterior part of the body: *thighs* unarmed.

OBSERVATIONS.

The disparity of size between the sexes of this species, would almost lead us to doubt their specific identity, or at least it would induce us to believe that the diminutive male is no other than the young of the female he accompanies as a mate.

On a journey to Florida with Mr. Maclure, I obtained a female which was crawling up the body of an Orange tree on Cumberland Island, Georgia. The male I had not seen until the recent return of Mr. T. Peale from that country, who brought many individuals of both sexes. He observed them in plenty in the southern part of that region. They were generally in pairs, on the Palmetto, lying close to the rib of the leaf. Mr. Peale remarked that when taken they discharged a milky fluid, from two pores of the thorax, diffusing a strong odour, in a great measure like that of the common GNAPHTHALIUM, or "Life everlasting;" and as this plant was growing near the place where they occurred, he supposed that it constituted at least part of their food. They vary much in colour, but it is believed that the two dorsal yellow stripes are never wanting.

The upper figure of the plate represents the male.

The lower figure, the female.

PLATE 38.



LYGAEIDAE. PISCIVORUS.

BERYTUS.

GENERIC CHARACTER.

Antennæ four-jointed, filiform, elongated, geniculated in the middle, inserted above a line drawn from the eyes to the base of the labrum; first joint very long, clavate at tip; second and third joints intimately connected so as to appear as one; last joint short and oval; body filiform; feet elongated, thighs clavate.

OBSERVATIONS.

This is one of the many genera that have been very properly separated from the Linnæan CIMEX by Fabricius under the name I have adopted, and under that of NEIDES by Latreille. It is very distinct in appearance from either of its neighbouring genera, and is remarkable for its slender form of body and limbs.

PLATE XIV.

BERYTUS SPINOSUS.

SPECIFIC CHARACTER.

Obscure reddish-brown; terminal joint of the antennæ fuscous; thorax punctured; a strong spine before the posterior feet.

DESCRIPTION.

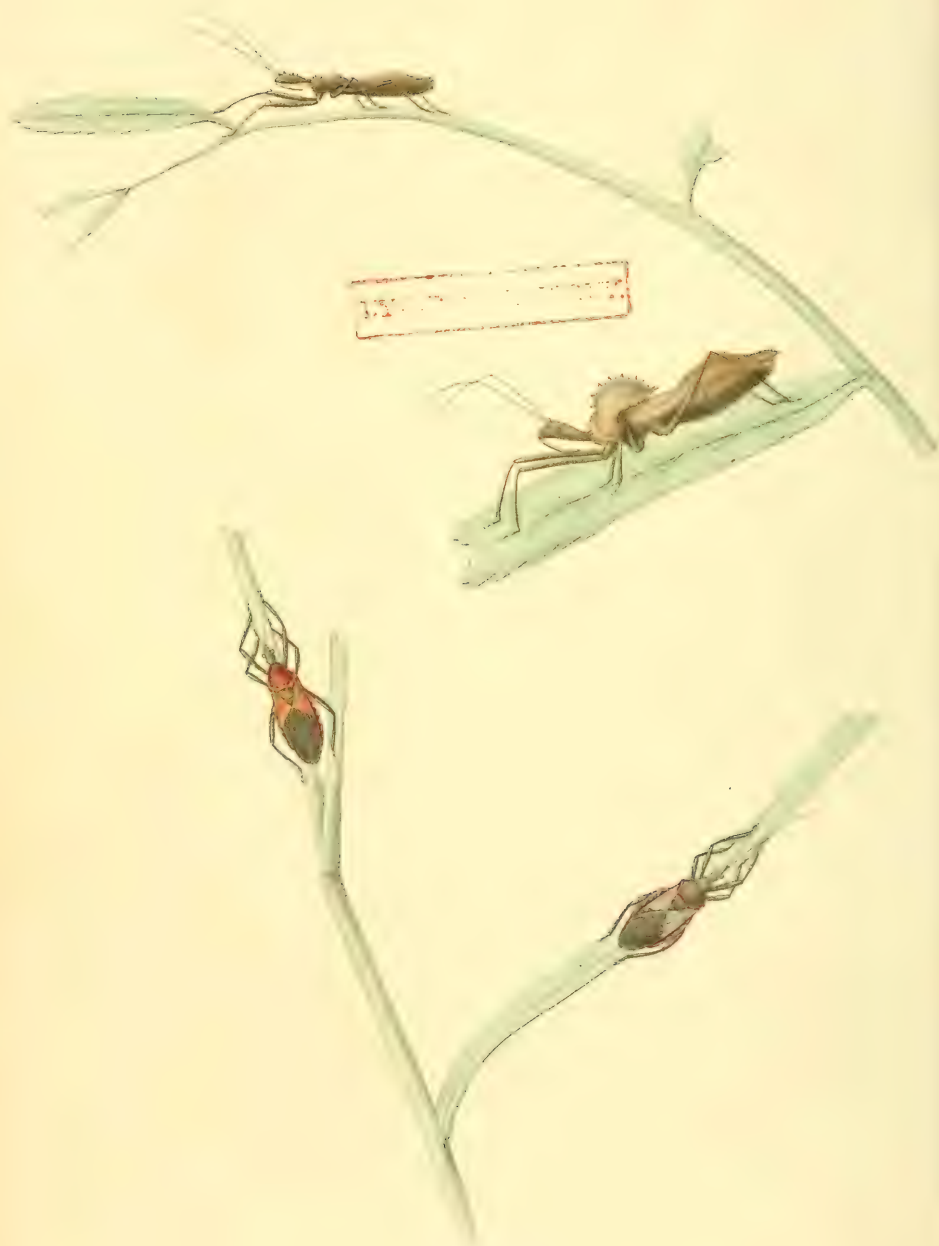
Antennæ longer than the body, terminal joint fuscous, yellowish at base and tip: *eyes* black: *stemmata* sanguineous, distant, placed very far back, almost lateral: *clypeus* produced, conic; *rostrum* as long as the thorax, inflected, and placed in a groove beneath: *thorax* gibbous behind, punctures large and crowded: *scutel* with an elevated spine: *elytra* nervous, with a black costal spot near the tip: *posterior feet* longest; a spine each side as thick as the thighs, originating before the posterior coxæ, curving upward above the elytra, and abruptly attenuated near the tip: *abdomen* depressed, fusiform, margined; margin paler.

OBSERVATIONS.

Of this genus Fabricius has described two species, of which the *tipularius* appears to be very like this insect—at least as far as I can judge from description, having no opportunity to consult a figure of either insect of the genus. One specimen in my cabinet has the antennæ rather shorter, and on the thorax are three lines a little elevated, one of which is dorsal and two marginal, with a two-lobed raised transverse spot before: this may be a sexual variety, or possibly a distinct species; but, for want of sufficient knowledge of them, I will not, at present, incur the responsibility of separating them.

The smaller figure in the plate denotes the natural size.

PLATE XIV.



REDUVIUS. *Fabr. Latr.*

GENERIC CHARACTER.

Body not linear; thorax sub-bilobate; rostellum arcuated, three-jointed, middle joint longest; antennæ inserted above a line drawn from the eyes to the base of the rostrum; tibiæ simple.

OBSERVATIONS.

Linné placed the species in the same genus with the common and well known "bed-bug," from which, however, they are without doubt, very distinct. Under the reforming hand of Fabricius, they were established as a separate group, with the present designation. These insects are carnivorous, and live by rapine in all their states. They seize smaller insects, and suck out their fluids. The collector must be very cautious how he handles these insects, as they are apt to inflict a painful puncture with their very pointed beak. When disturbed, they emit an acute sound, by the friction of the base of the head or the neck against the thorax.

REDUVIUS NOVENARIUS.

SPECIFIC CHARACTER.

Blackish ; antennæ and rostellum rufous ; thorax crested, crest eight or nine-toothed.

DESCRIPTION.

Brownish liver-colour, with very short hair : *head* cylindrical, a profoundly impressed transverse line between the eyes ; a spine behind each antenna inclining forwards : *antennæ* rufous : *rostellum* dark rufous, first joint more than half the whole length of the organ : *thorax* with a short robust spine each side at the base of the head ; crest prominent, with eight or nine cylindrical, rather distant teeth ; lateral angles bidentate, posterior tooth largest ; posterior margin crenate, with two prominent, terminal spines : *hemelytra*, membranaceous portion, brassy : *feet* simple, rather long : *tibiæ* tinged with rufous.

PLATE XXXI.

OBSERVATIONS.

This large and fine species is not uncommon in various parts of the Union, at least from Pennsylvania to the southern boundary. Its puncture is very painful, benumbing the vicinity of the wounded part, for a considerable time.

Its great similarity to the *R. cristatus* of South America, has hitherto induced entomologists to identify it with that species; but having carefully considered their respective characters, I am of opinion that they are distinct, though certainly very closely allied. The *cristatus* has at least twelve denticulations to its crest, and its pale rufous tibiæ, strongly contrast with the femoral colour.

The upper right figure of the plate.

REDUVIUS CRASSIPES.

SPECIFIC CHARACTER.

Blackish; thorax and abdomen margined with reddish; feet thick.

•PLATE XXXI.

SYNONYM.

REDUVIUS CRASSIPES. *Fabr. Syst. Rhyng.*
p. 273.

DESCRIPTION.

Body villous; posterior lobe bituberculate: *thorax* margined all round with red; anterior lobe with a triangular central indentation: *scutel* with a red band beyond the middle: *hemelytra* with a reddish humerus; coriaceous portion with two or three obsolete reddish points at tip; membranaceous portion much deeper black: *tergum* with red triangular spots on the incisures at the lateral margin: *pectus* with a spot above the insertion of each foot, and coxæ red: *venter* margined each side with red.

OBSERVATIONS.

This species was obtained by Bosc, in Carolina, and was described from his collection by Fabricius. I found the specimen in Arkansaw.

The lower right figure.

PLATE XXXI.

REDUVIUS SPISSIPES.

SPECIFIC CHARACTER.

Thorax and hemelytra light reddish-brown, edged behind with whitish; feet thick.

SYNONYM.

REDUVIUS SPISSIPES. *Nobis. Journ. Acad. Nat. Sciences*, vol. iv. p. 328.

DESCRIPTION.

Head black, posterior lobe with two tubercles: *thorax* light reddish-brown; anterior lobe with dilated, black, oblique, or arcuated lines, of which some are confluent; posterior lobe hardly more elevated than the preceding, with a black posterior sub-margin, and white posterior margin: *scutel* black, margined with white, and tipped by a few hairs: *hemelytra*, coriaceous portion light reddish-brown, with a narrow whitish posterior margin; membranaceous portion black, or dark fuscous: *feet* thickened, black, hairy:

coxæ bright red: *abdomen* black; margin and band on each segment, white.

OBSERVATIONS.

The species here described, is very closely allied to the *crassipes*. It occurred in some plenty in Arkansaw.

The lower left figure.

REDUVIUS RAPTATORIUS.

SPECIFIC CHARACTER.

Obscure brownish; head, thorax, and anterior feet, spinous; the latter raptatory.

SYNONYM.

REDUVIUS RAPTATORIUS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iv. p. 327.

PLATE XXXI.

DESCRIPTION.

Body oblong, obscure brownish: *head* with a deeply impressed line above the eyes, spinous; six larger spines before the impressed line, placed two and two, and two or four larger ones behind the line: *stemmata* sanguineous: *eyes* inserted in the lateral middle of the head: *antennæ* inserted near the tip of the clypeus, with dilated annulations of dull rufous and pale: *rostellum* slightly arcuated, pale: *thorax* with numerous, short, obtuse spines on the anterior lobe, and dense granulations on the posterior lobe; posterior angles hardly prominent: *feet* somewhat pale, sub-annulate, granulated; anterior pair raptatory: *thighs* unequal, anterior pair robust, villous, dusky, armed with an erect, prominent, obtuse spine, near the tip above, and a double series of ten equal, equidistant, acute spines, beneath; anterior tibiæ with a double series of six similar spines on the inner side: *tergum* rufous on the disk, margin varied with black, and pale: *hemelytra* on the membranaceous tip, with a longitudinal reddish-brown line.

OBSERVATIONS.

This may possibly prove to be the *R. diadema*, Fabr. It is common in many parts of the Union, and I found it not uncommon in Missouri, as well as in Pennsylvania.

The upper left figure of the plate.

PLATE XXXI.



TETYRA.

GENERIC CHARACTER.

Thorax very narrow before; scutel elongated, longer than broad, not covering the sides of the tergum; head immersed to the eyes in the thorax; antennæ five-jointed, second joint longer than the third; labrum very long, striated; rostrum four-jointed, the three first joints subequal; tarsi three-jointed, the first joint longer than the second.

OBSERVATIONS.

The genus TETYRA was separated from CIMEX of Linné, by Fabricius, to include those species of which the scutel is very much dilated and elongated, and the antennæ five-jointed. As instituted by that author, it is perfectly synonymous with SCUTELLERA of Lamarck and Latreille. Leach made a different disposition of these genera. He restricted the genus SCUTELLERA to those species that have the abdomen entirely covered by the scutel,

and the second joint of the antennæ shorter than the third; the genus TETYRA he limited so as to include only those of which the scutel, though still dilated and elongated, does not entirely conceal the sides of the abdomen, and the second joint of the antennæ is longer than the third. A third closely allied genus was distinguished by Schrank, under the name of THYREOCORIS, and adopted by Leach. Its scutel is broader than long, the second joint of the antennæ is very short, and the anterior margin of the thorax is but little narrowed.

Of all these genera, we shall be able to give examples in the course of the present work.

TETYRA FIMBRIATA.

SPECIFIC CHARACTER.

Dark green; thorax with a yellow spotted patch, each side behind; scutel margined with yellow.

PLATE 43.

DESCRIPTION.

Body dark-green. with large punctures: *clypeus* with the lateral edges parallel: anterior edge rufous, indented in the middle: *antennæ* and middle of the *rostrum* rufous: *thorax* with a large yellow spot each side behind, including about two dark-green spots, and a brown one; posterior angles a little prominent, obtuse: *scutel*, excepting at base, with a three-toothed margin: *hemelytra* dark-green, with a yellow lateral and posterior margin, the membranous portion dark-violaceous: *feet* rufous; *thighs* with three narrow, yellow bands, the anterior pair one-spined beneath; *tibia* with one yellow band, the anterior pair dilated towards the tip: *venter* with a transverse thick line in the middle, and an anterior longitudinal one; lateral and posterior margins yellow, the former four-dotted each side; beyond the middle, are two large, slightly indented, sericeous spots.

PLATE 43.

OBSERVATIONS.

'This singularly marked species, is rare in Pennsylvania.

The upper left figure of the plate.

TETYRA CINCTIPES.

SPECIFIC CHARACTER.

Dull, testaceous; feet pale, with fuscous spots.

DESCRIPTION.

Body above, dull, testaceous, or brownish, with close set, rather large, profound punctures: *head* black, acutely carinated, and with a very obvious tubercle each side, near the base; tip emarginated: *antennæ* piceous; terminal joint somewhat dilated: *thorax* with an obsolete glabrous line near the middle, and three tubercles on the anterior submargin, the intermediate one very obtuse, and sometimes obsolete; anterior

PLATE 43.

angles with a tubercle, and another on the lateral edge behind the middle: *anterior thighs*, and all the *tibiæ* blackish, with one or two pale bands: *intermediate* and *posterior thighs* pale, with two bands, and base blackish.

OBSERVATIONS.

Inhabits the middle states. It is one-quarter of an inch in length.

The lower right figure of the plate.

TETYRA VIOLACEA.

SPECIFIC CHARACTER.

Dark bluish-violaceous; venter with a fulvous line before the middle, and a spot at tip.

DESCRIPTION.

Body dark bluish-violaceous, with large punctures: *clypeus* with the lateral edge parallel; anterior edge indented in the middle: *thorax*,

PLATE 43.

posterior angles rather prominent, obtuse: *anterior thighs* with a prominent spine beneath: *anterior tibiae* dilated towards the tip: *postpectus*, middle incisures edged with opaque black: *venter* with a bright fulvous line extending from between the posterior feet to the middle, where it is gradually a little dilated; behind the middle are two slightly indented large sericeous spots; tip with a small bright fulvous spot.

OBSERVATIONS.

Closely allied to the preceding, I caught it on the margin of St. John's river, in East Florida.

The upper right figure of the plate.

TETYRA ALTERNATA.

SPECIFIC CHARACTER.

Rufous; beneath yellow; scutel with minute, abbreviated black lines.

PLATE 43.

DESCRIPTION.

Body above rufous, punctured: *head* narrowed before, and rounded at tip: *antennæ* rufous, basal joint yellow, terminal joint fuscous: *thorax* with the posterior angles obtusely rounded: *scutel* with numerous, very short, transverse black lines; a transverse, slightly raised elliptical line at base, from which proceeds a slightly carinated longitudinal line, becoming obsolete on the middle; tip very slightly emarginate: *hemelytra* on the coriaceous portion marked by the same minute lines as the scutel: *tergum* margined with alternating black, quadrate spots: *beneath* yellow: *feet* simple, rufous: *venter* with two almost obsolete black lines gradually approaching each other to the penultimate segment, where they terminate in a common black spot.

OBSERVATIONS.

This species inhabits the middle states, but it does not occur very frequently.

The lower left figure of the plate.

PLATE 43.



LYCHNOT HISTRIX

PLOIARIA.

GENERIC CHARACTER.

Body elongated, filiform; feet ambulatory, very long, with distinct nails; anterior pair shortest, raptatory, with elongated coxæ; eyes moderate; labrum very short; antennæ elongated, setaceous, four-jointed; beak inflected.

OBSERVATIONS.

Such is the particular form and appearance of the antennæ in insects of this genus, that on a slight inspection, a person would almost be disposed to pronounce them ambulatory, and that there are therefore eight feet. But no true insect yet known, has more or less than six feet. As respects the remarkably long and slender form of some of the species, they have considerable affinity for the genus *SPECTRUM*, and the anterior pair of feet may be compared to those of *MANTIS* and *EMPUSA*, with equal aptitude. These feet are much shorter than the others, are used almost altogether for the pur-

pose of seizing and conveying the prey to their mouth; whilst the two posterior pairs support the body, and move it from place to place. Their movements are rather slow and unsteady, moving up and down upon their legs as they proceed forwards, in the manner of the Crane-fly (TIPULA). They feed on small insects. Scopoli, first established this genus; the species were referred to CIMEX, by Linné and others, and Fabricius, unacquainted with what Scopoli had done, perceived the necessity of forming a genus for them, and this he called EMESA, of which he describes four species; three belonging to America, and one to the East Indies. The CIMEX *vagabundus*, Linn., of Europe, is a fifth species, which, however, Fabricius placed in his genus GERRIS.

The word PLOIARIA, is of uncertain origin, Mr. Dumeril supposes it to have been derived from the Greek name for a small vessel, πλοῖάριον. (*navicula*.)

PLATE 47.

PLOIARIA BREVIPENNIS.

SPECIFIC CHARACTER.

Fuscous-rufous, glabrous; wings abbreviated; feet near the knees annulated.

DESCRIPTION.

Body fuscous, more or less tinged with sanguineous: *antennæ* very slender, with a white annulus at the tip of the first joint: *anterior tibiæ* with the spines black at tip: *nervures* of the wings brownish: *intermediate* and *posterior feet* with the thighs near the tip, and *tibiæ* near the base biannulate with whitish: *tergum* beneath the wings bright sanguineous.

OBSERVATIONS.

This is a very common insect, and is often found even in the city of Philadelphia. It inhabits out-houses, where it may be observed generally motionless on the walls. When dis-

turbed, it moves its body up and down on its legs, and at the same time advances slowly forwards.

The line denotes the natural size.

PLATE 47.



LYC. NAEMHISTRIZ.



MANTISPA.

GENERIC CHARACTER.

Antennæ filiform, but little longer than the head, the joints transverse; eyes prominent; thorax having the anterior segment elongated, cylindric-clavate, supporting the anterior pair of feet at its anterior extremity; anterior feet advanced, very conspicuous, cheliferous, the basal joint very much elongated; wings reticulated, deflected.

OBSERVATIONS.

A very small, but singular and natural group of insects, allied to MANTIS, and also to RAPHDIA. Linné placed a species, which he described under the name now adopted as generic, in the genus RAPHDIA, and Lamarck assents to an alliance with that genus, by placing MANTISPA immediately next to RAPHDIA, in his system. Latreille, who formed the genus, and most other authors, refer it to the same family with MANTIS and

SPECTRUM; indeed, in the Règne Animal, it is considered as a mere sub-genus of MANTIS.

But if we adhere rigidly to the characters of the order HEMIPTERA, in which the superior wings are stated to be coriaceous or of a different consistence from the inferior pair, the genus MANTISPA, notwithstanding its acknowledged affinity with MANTIS, will be altogether excluded from that order. In construction, number, and consistence of the wings, from which the characters of these grand divisions are derived, it is, beyond a doubt, a NEUROPTEROUS genus, and we adopt Lamarck's arrangement in this respect. It is distinguished from all the other genera of this order, by the particular form of the anterior feet.

These insects are not quiescent in the nymph state, or that condition which corresponds to the chrysalis state of the butterfly, but they remain active, as in the larva.

PLATE XXV.

MANTISPA BRUNNEA.

SPECIFIC CHARACTER.

Light brown; antennæ fuscous, light brown at the extremity; wings with a very broad, brown margin.

SYNONYM.

MANTISPA BRUNNEA. *Nobis.* *Long's Expedition to the sources of St. Peters' river*, vol. ii. p. 309.

DESCRIPTION.

MALE. *Antennæ* short: posterior and inferior *orbits*, yellow: *thorax*, first segment obtusely wrinkled or undulated transversely; anterior margin black, sub-margin yellow; base black, with a yellow, transverse, angulated line: *scutellum* yellow: *metathorax* yellow on the posterior edge: *pleura* bilineate, with yellow: *wings* with a broad, light brown costal margin and tip: *feet*, intermediate and posterior pairs, with yellow

tibiæ and tarsi, a rufous spot being near the knee ; anterior thighs blackish on the inner side, with a yellow exterior inferior margin, and numerous spines on the inferior edge, of which one is very prominent: *tergum*, at the base of the first and second segments, black, the former margined with yellow: *venter* black at base, segments broadly margined with yellow.

FEMALE. The yellow colour, and marginings, excepting on the feet, and on the first segment of the thorax, obsolete ; the wings are darker than those of the male, and the hyaline portion of the wings is tintured with a shade of the general colour.

OBSERVATIONS.

A specimen of the female of this curious insect, was presented to me, some time since, by Mr. William Mason, of this city ; it was found near Philadelphia, by Mr. Tyler. I had the good fortune to find a male, when travelling with Major Long's party on St. Peters' river, in the North-West Territory.

The middle figure represents the male, and the lower figure the female. On the right is an

enlarged view of the head, with the antennæ, and part of the thorax, and on the left, is an enlarged view of an anterior foot.

MANTISPA INTERRUPTA.

SPECIFIC CHARACTER.

Wings hyaline, with a narrow ferruginous costal margin, widely interrupted near the tip.

DESCRIPTION.

Body pale: *antennæ* rather slender, perfectly filiform, not differently coloured at tip, but somewhat paler at base: *thorax*, anterior segment rather long, annulate, with slightly elevated obtuse lines, which give it a somewhat wrinkled appearance; two small tubercles before the middle, placed transversely; posterior segment greenish-yellow, with a longitudinal brown line, and another on each side above the wing: *wings* alike, hyaline, the ferruginous costal margin is narrow, interrupted beyond the carpus, so as to leave only a spot at tip of the wing; on the sub-

margin, is an irregular quadrate dark fuscous spot, confluent with the carpus; the ferruginous margin of the superior wing, is paler towards the base: *postpectus*, and *intermediate* and *posterior feet*, pale greenish-yellow, the front of the former dusky: *tergum* pale reddish-fulvous, incisures, and vertebral line, blackish: *venter* pale yellow.

OBSERVATIONS.

The annexed figure is taken from the only specimen I have seen. It alighted on the apron of a gig, near this city, and was carefully secured by Mr. James P. Parke, who kindly presented it to me. It remained lively and active for several days in a glass vessel on my table, and I was frequently amused by its dexterity in catching the flies which were introduced for its nourishment. It moved very slowly and cautiously towards its victim, and when at the proper distance, the fore-feet were thrown forwards, and again retracted, with a rapidity of motion, that the eye could not follow, bringing the fly with them to the mouth. These feet are used almost exclusively as arms and hands, turning the food offered to the mouth, in various positions for the convenience of mastication; they are rarely used

in locomotion, but when the insect advances by means of the other feet, these are folded up, and rest on each side of the long anterior segment of the thorax. The two or three flies first given to this little animal, were entirely devoured, so that not a fragment remained; but having abated its hunger, it extracted the fluids chiefly, of those afterwards placed within its reach.

The upper figure; below, is an enlarged representation of a wing, and a posterior foot.



PHRYGANEÆ.

GENERIC CHARACTER.

Antennæ as long as the body, with numerous joints; stemmata two; mandibles none; palpi rather long; inferior wings larger than the others, longitudinally folded; feet elongated, spinous; tarsi elongated, five-jointed, terminal joint with two small nails; abdomen destitute of filaments at tip of the tail.

OBSERVATIONS.

The greater number of these insects venture forth upon the wing during the evening and night, and when disturbed in their resting place in the day, they fly a short distance, and again seek a place of concealment and safety. They frequently enter our houses in the evening, attracted by the light of a candle, around which they fly. The larva lives in the water, and the parents are therefore generally in its vicinity. Some species swarm in large flocks, whilst others are solitary. They are light and active, and run

with much swiftness. When the female is about to deposit her eggs, she ejects a considerable number of them, which remain attached together at the extremity of her abdomen; these she places in a favourable situation, on the stalk or leaf of a water-plant, or other object, from which the young larva may readily pass into the water. Here it soon begins to fabricate a tubular, portable dwelling, which, as respects form, may be compared to that of the clothes-moth. This domicil consists of a silky matter, with various objects attached to the exterior, such as sand, gravel, small pieces of wood or reed, &c., so proportioned that its weight exceeds but little that of the water. As the inhabitant increases in bulk, the tube at length becomes too small, and is necessarily abandoned. Another, of suitable dimensions, is, however, soon constructed, and the little animal is again in a state of security. This artisan, is of a cylindrical, somewhat elongated form, consisting of twelve joints or segments; on the fourth joint is generally a conic tubercle on each side, and on the ultimate segment are two moveable hooks; these projections from the body, appear to be useful as points of support against the sides of the tube. The head is of a firm consistence, fur-

nished with strong mandibles. and two eyes. The feet are six in number, and are not natatory, the anterior pair being shorter and thicker than the others, which are considerably elongated, and not dilated, nor deeply ciliated. Thus constituted, the animal crawls at the bottom of the water, with the feet and the anterior part of the body protruded from the tube, in search of food.

When about to undergo the change into the nymph state, the larva affixes its tube to some permanent object. It then proceeds to close the ends of its dwelling by a silky net, the meshes of which are so small as to prevent the ingress of depredating insects, and yet sufficiently large to admit of a free circulation of water for the purpose of respiration. The head of the nymph is provided with a kind of beak, consisting of two hooks, which are used to force a passage through the net-work. At this period, which occurs in fifteen or twenty days after the change from the larva state, its period of immobility ceases: it departs from its tube, and walks or swims with activity, the feet being fringed for the latter purpose. The young animal now for the first time emerges from the water, and seeks a dry, secure position for its ultimate change

here, after remaining at rest for some minutes, to permit the superfluous moisture to evaporate, it throws off its covering, and soon takes wing in search of a mate. Many species of a smaller size proceed in a different manner; the nymph ascends to the surface of the water, where it is emancipated from its exuvia, which serves as a boat to support the perfected insect, until its wings are sufficiently developed, dried, and prepared for flight.

The word Phryganea is derived from *φρυγανον*, a bundle or fagot of sticks.

PHRYGANEA SUBFASCIATA.

SPECIFIC CHARACTER.

Pale honey-yellow; superior wings a little dusky, with two transverse blackish spots on each.

PLATE 44.

SYNONYM.

P. SUBFASCIATA. *Nobis. Long's second Expedition*, vol. ii. p. 308.

DESCRIPTION.

Body honey-yellow: *head* a little more tinged with rufous, paler beneath: *antennæ* blackish; first joint yellowish on the inner and inferior irides: *superior wings* dull-ochreous, covered with bullæ, or minute raised points, with a dusky inner and terminal margin; on each are two subequal, transverse, dusky spots, the anterior one near the middle, and connected with the inner margin; the posterior one a little undulated, placed nearer the anterior spot, than to the tip of the wing.

Variety *a*. Spots of the superior wings obsolete, or wanting.

OBSERVATIONS.

Rather smaller than the preceding species, and very distinct from it. It is easily known

PLATE 44.

by the two striking dusky spots on each superior wing. I obtained two or three specimens during a recent excursion with Mr. Maclure, into the interior of Pennsylvania.

The left middle figure of the plate.

PHRYGANEA DOSSUARIA.

SPECIFIC CHARACTER.

Wings with the nervures, and dilated transverse irregular lines, blackish.

DESCRIPTION.

Body pale yellowish-ochreous: *antennæ* dark-brown: *stemmata* brown on the inner side, white on the exterior side: *superior wings* yellowish-white, with blackish nervures, and transverse somewhat dilated, connecting blackish lines, hardly forming bands; of these, one forms a quadrate spot on the costal margin, and one is common near the inner posterior angle; *inferior*

PLATE 44.

wings with two costal spots and terminal margin: *tergum* dusky, segments paler towards their tips.

OBSERVATIONS.

This species was sent to me, with several other interesting insects, by Mr. Charles Pickering, of Salem.

Lowest figure of the plate.

PHRYGANEA SEMIFASCIATA.

SPECIFIC CHARACTER.

Superior wings dull ferruginous, with irregular black lines; a distinct black point near the inner basal angle; inferior wings light ferruginous.

SYNONYM.

P. SEMIFASCIATA. *Nobis. Western Quarterly Reporter*, vol. ii. p. 161.

PLATE 44.

DESCRIPTION.

Body when recent, light olivaceous-green: *head* dark ferruginous above: *eyes* dark-brown, with a moveable black pupil: *mouth* pale: *neck* light-green, with a brown, transverse, hirsute collar on the middle: *thorax* dark ferruginous, hairy, blackish each side: *feet* pale: *superior wings* dull ferruginous, with numerous opaque, transverse, abbreviated, black lines; a small black point at the inner basal angle, and a small transverse, abbreviated dusky line on the inner margin, a little beyond the middle; *inferior wings* light honey-yellow, a blackish, dilated, angulated, semifasciate line near the tip, and a black, anterior spot near the inner margin: *pectus* pale-brownish.

OBSERVATIONS.

This species frequently occurs in various parts of the United States. It is an inhabitant of Pennsylvania and New-Jersey, and I also found specimens near the falls of the Ohio river; and another was sent to me by Dr. T. W. Harris, of Massachusetts. A variety in my cabinet, is

altogether destitute of the semifascia on the inferior wings.

The two upper figures.

PHRYGANEA INTERRUPTA.

SPECIFIC CHARACTER.

Grayish; superior wings with a longitudinal black line, and a smaller one near the tip.

DESCRIPTION.

Body with grayish hair: *eyes* fuscous: *palpi* and *antennæ* black: *superior wings* gray, disk tinged with dusky, a black line extending from the base to near the middle of the terminal edge, and slightly interrupted in its middle; nearer the costal margin, and beyond the middle, is an abbreviated black line; inner margin hoary, immaculate; *inferior wings* dull-ochreous, with a broad blackish tip: *tibiæ* dusky: *tarsi* dusky, the joints pale at their bases.

PLATE 44.

OBSERVATIONS.

For this pretty species, I am indebted to my brother, who caught two specimens at Pleasant Mills, New-Jersey.

The right middle figure of the plate.

PLATE 44.



LYC. NAT. HIST. NY.



STIZUS.

GENERIC CHARACTER.

Thorax with the first segment transverse linear: feet short or moderately long: labrum entirely exerted, short, semicircular: palpi fili-form, maxillary ones longer, six-jointed; labial palpi four-jointed: ocelli very distinct: superior wings not folded longitudinally: radial cellule one, elongated; cubital cellules three, the second narrowed before, and receiving the two recurrent nervures; the third not attaining to the end of the wing.

OBSERVATIONS.

Latreille formed this genus for the reception of many species of the tribe BEMBECIDES, distinguished by the above recited characters. These species had previously been placed in the genus BEMBEX by Fabricius and Olivier, in that of CRABRO by Rossi and Fabricius, in LARRA by Illiger and Fabricius, in SPHEX by Villers, in MELLINUS by Panzer, in LIRIS and SCOLIA by

Fabricius, and by Latreille, in his earlier works, in *MONEDULA*.

Of all the genera which form the order HYMENOPTERA, the present genus is the most closely allied to those of *MONEDULA* and *BEMBEX*, in the general appearance of the insects of which it is composed, as well as in the distribution of the nervures of their wings. This affinity is so striking in many species of these groups, that it becomes necessary to inspect the form of the labrum, in order to decide upon their respective appropriate genus. A very remarkable difference is observable in this organ, which, in those genera, is much elongated and triangular, but in *STIZUS* it is short and semiorbicular. Nearly all the species have three spines at the extremity of the abdomen, as in the genus *SCOLIA*, but they cannot be considered as *Scolia*æ, as their eyes are entire, and the form and number of the wing cellules are altogether different.

PLATE II.

STIZUS GRANDIS.

SPECIFIC CHARACTER.

Segments of the abdomen, each with a yellow band, and lateral blackish spot.

SYNONYM.

STIZUS GRANDIS. *Nobis. Western Quarterly Reporter*, vol. ii. p. 77.

DESCRIPTION.

Antennæ black, the three basal joints rufous: *front* and *labrum* yellowish: *thorax* with a yellowish spot on the anterior angle, and first segment margined with yellowish: *scutel* ferruginous: *wings* ferruginous, dusky at tip: *feet* ferruginous: *tergum* ferruginous, each segment with a yellow band, and lateral, blackish, oblique, sublinear spot; *venter* with an obsolete margin on the second segment, and obsolete lateral triangles on the remaining segments, yellowish.

MALE. Head, thorax, base of the three or four terminal, and of the abdominal segments,

PLATE II.

and beneath, black; bands of the abdomen uninterrupted; lateral spot of the first band obsolete or wanting; anal spines none. Length to the tip of the wings, one inch and a fifth.

FEMALE. Ferruginous; basal band of the abdomen, and sometimes the second and third bands, interrupted in the middle; lateral spot of the first abdominal band very oblique. Length to the tip of the wings, one inch and three-fifths.

OBSERVATIONS.

This remarkably fine and new species is very distinct from the *speciosus* of Drury, and is somewhat larger than that common insect. When descending along the bank of the Arkansa river, with a detachment of Major Long's exploring party, I had frequent opportunities of observing this species. It generally occurred upon flowers, in company with many other interesting HYMENOPTEROUS insects. It is highly probable, that, like the *speciosus*, the *grandis* nidificates in the earth, and feeds its larvæ with the dead bodies of CICADÆ.

The *speciosus*, *grandis*, and a few other large species, ought to constitute a distinct division in

this genus, distinguished by the want of spines at the tail of the male.

The upper figure represents the female, and the lower left figure the male, both of the natural size.

STIZUS UNICINCTUS.

SPECIFIC CHARACTER.

Black, opaque; abdomen polished, with a rufous band above; wings dark violaceous.

SYNONYM.

STIZUS UNICINCTUS. *Nobis. Western Quarterly Reporter*, vol. i. p. 77.

OBSERVATIONS.

A broad, bright rufous band occupies the basal half of the second segment of the tergum. The wings are blackish-violaceous, and the anal spines

are prominent. The length of the male is half an inch.

This species occurred on the banks of the Arkansa river, in company with the preceding insect.

The lower right figure magnified, and beneath is an outline showing the natural size.

PLATE II.



LIBELLULA CRISTATA



PELECINUS.

GENERIC CHARACTER.

Antennæ with not more than fourteen joints; tongue trifid; neck not apparent; posterior tibia clavate; abdomen slender, elongated, filiform, inserted at the posterior and inferior extremity of the metathorax.

PELECINUS POLYCERATOR. *Drury.*

SPECIFIC CHARACTER.

Black; antennæ with a white annulus; posterior tibia sericeous on the inside.

SYNONYMS.

ICHNEUMON POLYTURATOR. *Drury*, vol. ii. pl. 40, fig. 4.

PELECINUS POLYCERATOR. *Fabr. Latr.*

PLATE XV.

DESCRIPTION.

Head with a compressed, elevated, scale-like tooth at the inner base of each antenna: *antennæ*, tenth joint and half of the ninth joint white: *wings*, nervures and costal margin fuscous: *feet*, two anterior pairs blackish-piceous; posterior pair black, polished, the tibia much dilated at tip and much dilated on the inner side, the tarsi piceous.

OBSERVATIONS.

A truly singular insect, not uncommon in various parts of the United States. Its flight is slow and awkward, and when taken it endeavours to force the point of the abdomen through the skin of the hand, but its strength not adequate to the task. The whole abdomen resembles a much elongated pedicle, from which the abdomen itself, or dilated portion, has been accidentally removed.

The plate exhibits two views of the insect, natural size, and a wing somewhat magnified, to show the arrangement of the nervures.



LYC. NARHISTIN. Y.



ICHNEUMON.

GENERIC CHARACTER.

Antennæ more than twenty-jointed; abdomen elipsoidal, composed of more than five segments, and attached to the thorax by a portion only, of its transverse diameter, by an abrupt slender peduncle; all the wings having very distinct nervures; extremity of the abdomen of the female very slightly compressed, not obliquely truncated; oviduct concealed, or hardly prominent.

OBSERVATIONS.

As originally instituted by Linné, the genus of this name was extremely abundant in species, and although many divisions have been made by Fabricius and others, the species are still numerous. As I adopt the genus, it corresponds with that of Fabricius and Latreille, and with *Cryptus* as defined by Lamarek.

These insects perform an important part in the operations of nature, inasmuch, as they seem destined to limit the increase of Lepidopterous

insects, by destroying their larvæ, so injurious to the interests of agriculture. All are parasitic, and in habit, they may be compared to the *Ichneumon* amongst the quadrupeds, an animal said to break the eggs of the crocodile, and even to penetrate the abdomen of that formidable reptile, in order to devour the living viscera.

The female, in this interesting genus, when about to deposit her eggs, becomes very active and impatient, flying from leaf to leaf, in search of a proper nidus; having found a caterpillar of suitable magnitude, she places her eggs either upon the skin, or by puncturing it, within the body, notwithstanding the convulsive efforts of prevention made by the victim. I was witness to a somewhat curious fact in relation to one of these insects; observing an object closely resembling a caterpillar, resting on a leaf, I was preparing to take possession of it, when an *Ichneumon* alighted on the leaf, and proceeded to examine the object of my attention; it ran briskly up to it, and touched it first on one side, and then on the other, with its vibratory antennæ; but it finally departed without any attempt at oviposition. This deportment excited my suspicions in regard to the nature of the supposed caterpillar, and on examining it more closely, I

discovered, to my surprise, that it was not the larva of an insect, nor even the remains of one. Thus it appeared, that the Ichneumon, as well as myself, was deceived by its organ of vision, and that another sense was resorted to, in order to ascertain the truth.

The larvæ disclosed from the eggs of the parent Ichneumon, are altogether destitute of feet; like intestinal worms, they feed on the interior of the body of their Promethean victim, which continues to walk and feed as usual. The depredators are by no means indiscriminate in their choice of food, but prefer the adipose part of the system, and spare the vitals until the former is exhausted. By this selection, the life of the larva is continued until the parasite obtains its full size, and is prepared to enter into the state of pupa. The larva then attaches itself firmly to a fixed surface by means of its feet, and dies. The pupæ, secure within, await their destined period in tranquillity, and the included insects finally emerge from their contracted boundaries, by gnawing a passage through their own indurated covering, as well as through the common integument of the larva.

ICHNEUMON DEVINCTOR.

SPECIFIC CHARACTER.

Black ; abdomen rufous ; scutel, annulus of the antennæ and of the tibiæ, white.

DESCRIPTION.

Body black: *antennæ* rather short, annulus pure white, commencing at the ninth joint, and extending to the eighteenth: *scutel* pure white: *wings* dusky violaceous: *abdomen*, with the exception of the first segment, bright rufous: *tibiæ*, excepting at base and at tip, pure white: *anterior and intermediate tarsi*, with the first joint, white at base.

OBSERVATIONS.

This species is not very common. I obtained a specimen in the North-West Territory. An individual occurred in Missouri, that may, perhaps, be only a variety of the present species; it

is smaller, and has ferruginous, instead of white, on the feet.

The upper right figure.

ICHNEUMON UNIFASCIATORIUS.

SPECIFIC CHARACTER.

Black; annulus of the antennæ, two scutellar spots, and band near the base of the abdomen, white.

DESCRIPTION.

Body black: *front*, *nasus*, and line on the frontal and exterior orbits, white: *antennæ* moderate, with a white annulus beginning at the fifteenth joint, and extending to the twenty-first joint: *thorax* with two abbreviated white lines on the middle; an oblique line each side before the wings, wing scale, and small spot beneath the wings, white: *scutel* white, with a small transverse white spot at its tip: *wings* fuliginous: *abdomen* depressed, rather slender; first segment

white at tip, forming a band: *tibiæ* white on the exterior side.

OBSERVATIONS.

This insect is of frequent occurrence in all the middle states. There is a variety, of which the abdomen is very slightly tinged with rufous. Allied to *nigratorius*, Fabr. but may be distinguished by the band on the first segment of the abdomen, and by the white spot behind the tip of the scutel, and by the two between the anterior wings.

The lower right figure.

ICHNEUMON CENTRATOR.

SPECIFIC CHARACTER.

Black; antennæ annulate; scutel, and disk of the thorax, ferruginous.

PLATE XXII.

DESCRIPTION.

Body black: *head* dull ferruginous, with a polished, impressed, black line at the base of the antennæ: *antennæ* with a white annulation, beginning at the seventh joint, and extending to the seventeenth: *thorax* with the disk between the anterior pair of wings, and the scutel, dull ferruginous: *tibiæ* dull rufous, excepting at tip: *wings* dusky violaceous.

OBSERVATIONS.

It occurs frequently in Pennsylvania, and as I have found it both in Missouri and the North-Western Territory, it appears to be a pretty general inhabitant of the United States.

The lower left figure.

PLATE XXII.

ICHNEUMON BREVICINCTOR.

SPECIFIC CHARACTER.

Black; scutel and the very short band on the antennæ, white.

DESCRIPTION.

Body black: *head* immaculate: *antennæ* with the white annulus beginning at the seventeenth joint, and extending to the twenty-first: *thorax* immaculate: *scutel* yellowish-white: *wings* a little dusky: *knees* and *tibiæ* of the anterior pair of feet, dull rufous.

OBSERVATIONS.

In form and general appearance, it resembles *unifasciatus*, Nob. but the different individuals correspond in having the annulus of the antennæ very short, and commencing at the seventeenth joint; in having no spot beyond the tip of the scutel, in having the head immaculate, &c. It also resembles *nigratorius*, Fab. but is much smaller, and is altogether destitute of orbital lines.

The upper left figure.

PLATE XXII.



SCOLIA.

GENERIC CHARACTER.

Thorax with the first segment very much arcuated and contracted on the posterior middle; antennæ robust, with short close set joints; the first joint long, cylindrical; second joint distinct; superior wings not folded; radial cellule detached at tip from the anterior edge of the wing; cubital cellules two or three, the last one remote from the tip of the wing, the first one placed on the same longitudinal line with the radial cellule; eyes emarginate; stemmata three; thighs thick, arcuated in the females, compressed; tail three spined in the males.

OBSERVATIONS.

A genus, in some respects, closely allied to *TIPHIA* and *PLESIA*, but at once distinguishable by the emarginated eyes. The thighs are remarkable for their thickness and curvature. The form of the cubital cellules varies considerably, but to a determinate and limited extent. In the

distribution of the nervures of the wings, Jurine remarks, they present more remarkable anomalies, than are to be found in any other hymenopterous insects; "it would seem that nature, in circumscribing the extent of the cubital cellules, has amused herself with varying them in several respects of manner and form, supplying to one part what she retrenches from another." Latreille has availed himself of these anomalies, to form divisions of the numerous species of this genus. This author gives the following account of the species: Many of them are of a large size, and inhabit warm and temperate climates exclusively. In Europe, the larger species begin to appear about the forty-third degree of latitude. Their metamorphosis is unknown, but Mr. Latreille supposes that their larvæ are parasitical, from the circumstance of his not having seen the parents transport larvæ, spiders, &c. to feed their young. They frequent arid, sandy places, and feed on the contents of the nectary of flowers.

SCOLIA CONFLUENTA.

SPECIFIC CHARACTER.

Black ; tergum trifasciate with yellow.

SYNONYM.

SCOLIA CONFLUENTA. *Nobis.* *Western Quarterly Reporter*, vol. ii. p. 74.

DESCRIPTION.

Body deep black : *antennæ* short, arcuated : *front*, *occiput* with yellowish cinereous hair : *thorax* immaculate, with yellowish cinereous hair before : *wings* tinged with ferruginous : *nervures* ferruginous : *cubital cellules* two, the second receiving two recurrent nervures : *meta-thorax* acutely edged and hairy above ; behind concave and very rugous, with elevated, abbreviated, transverse lines, and a longitudinal one : *tibiæ* rugous, armed with prominent spines : *abdomen*, segments ciliated on the edge : *tergum* trifasciate with yellow ; first band with a small black

dot on the middle of the anterior edge ; second band widely and deeply emarginated on the anterior middle, and rather abruptly narrowed on the side ; third band composed of two confluent triangles, which are marked by a small black transverse dot near the exterior angle of each.

OBSERVATIONS.

This fine species inhabits Arkansaw ; it agrees with the description of *fossulana*, Fabr., excepting that it has but three bands on the tergum.

The upper figure.

SCOLIA OCTO-MACULATA.

SPECIFIC CHARACTER.

Thorax black, scutel with a yellow line ; tergum four-spotted each side.

SYNONYM.

SCOLIA OCTO-MACULATA. *Nobis. West. Quart. Report.* vol. ii. p. 74.

PLATE XXIX.

DESCRIPTION.

Head black, with the vertex, basal joint of the antennæ, anterior margin of the clypeus, and base of the mandibles, dull rufous: *thorax* black, anterior segment, and two spots before the scutel, obsoletely dull rufous: *scutel* with a yellow line: *metathorax* rufous each side and above: *superior wings* tinged with purplish; costal margin rufous to the tip of the cellules: *cubital cellules* three, the intermediate one petiolated, and receiving two recurrent nervures: *feet* rufous: *tergum* dusky rufous, with four transversely oval bright yellow spots on each side, of which the anterior one is very small, and the posterior one is nearly extended into a band.

OBSERVATIONS.

Inhabits various parts of the Union, and is not uncommon in Pennsylvania. The wing cells are remarkable; the intermediate cubital cellule having two recurrent nervures.

The lower figure.

PLATE XXIX.

SCOLIA TRICINCTA.

SPECIFIC CHARACTER.

Black; collar with two yellow spots; scutel with one yellow spot; tergum trifasciate with yellow.

SYNONYM.

SCOLIA TRICINCTA. *Nobis. Western Quarterly Reporter*, vol. ii. p. 74.

DESCRIPTION.

Body black: *front* with obscure yellowish hair: *mandibles* rufous at base: *collar* with a yellow spot on each side, sometimes united: *squamula* rufous: *scutel* with a small yellow spot: *feet* rufous: *superior wings* dusky on the costal tip, nervures ferruginous: *cubital cells* two, the second receiving one recurrent nervure: *tergum* with three yellow bands, of which the first and second are nearly, or, quite interrupted

in the middle, each into two oval spots; first segment with an obscure piceous band.

OBSERVATIONS.

The terminal nervure of the radial cellule is so perfectly transverse, that the cellule has not the usual appearance of being separated at tip from the costal edge of the wing. The species is, notwithstanding this anomaly, a true *SCOLIA*.

The middle figure.

PLATE XXIX.



IMC 721-1021N2



TREMEX.

GENERIC CHARACTER.

Antennæ setaceous, inserted on the front, thirteen or fourteen jointed; mandibles robust, short, denticulated; labial palpi terminated by a thick, hairy joint; superior wings with two radial cellules, the second incomplete, and two cubital cellules, of which the first is very large, receiving the two recurrent nervures, the second incomplete, not attaining the end of the wing; abdomen sessile, terminating in a point; oviduct exerted.

OBSERVATIONS.

This genus is very similar to *SIREX*, from which it was separated by Jurine. It may be distinguished by the smaller number of joints in the antennæ, as well as by the number and form of the cellules of the wings.

PLATE XXXII.

TREMEX SERICEUS.

SPECIFIC CHARACTER.

Ferruginous ; tergum yellowish-sericeous.

SYNONYM.

TREMEX SERICEUS. *Nobis. Western Quarterly Reporter*, vol. ii. p. 73.

DESCRIPTION.

Body ferruginous, punctured: *head* with three indented longitudinal lines on the vertex, and a transverse one between the eyes: *antennæ* yellowish: *thorax* scabrous before, disk with a black spot on each side: *wings* brownish-fuliginous: *carpus* yellowish: *feet* pale yellowish: *thighs* ferruginous: *tergum* pale yellowish-fulvous, sericeous: *pectus*, above the posterior feet, black.

OBSERVATIONS.

The specimen is a female. I obtained it in
PLATE XXXII.

Missouri, whilst engaged in the exploring expedition under the command of Major Long.

The upper figure.

TREMEX OBSOLETUS.

SPECIFIC CHARACTER.

Ferruginous; tergum black.

SYNONYM.

TREMEX OBSOLETUS. *Nobis.* *Western Quarterly Reporter*, vol. ii. p. 73.

DESCRIPTION.

Body ferruginous, punctured: *head* with three obsolete indented lines upon the vertex, and a transverse one between the eyes: *antennæ* pale ferruginous: *thorax* scabrous before, with a black spot on each side of the disk: *wings* yellowish-brown, hyaline: *carpus* rufous: *posterior tibiæ* and *tarsi*, black at their tips: *tergum* black,

PLATE XXXII.

polished ; segments, particularly those near the base, with an obsolete rufous spot on each side, more distinct on the fourth segment.

OBSERVATIONS.

Taken in the same region with the preceding. The number of cubital cellules do not correspond with the definition of the genus, as we have here adopted it. There are, in fact, three cubital cellules, of which the first is very small, and it is the second that receives the recurrent nervures. Notwithstanding this character, however, there can be no doubt of these insects being correctly arranged, when placed in this genus.

The left figure.



TREMEX COLUMBA.

SPECIFIC CHARACTER.

Thorax ferruginous ; abdomen with a band, and lateral spots yellow.

PLATE XXXII.

SYNONYM.

- SIREX COLUMBA. *Fabr. Syst. Piez.* p. 49.
Amœn. Acad. vol. vi. p. 412. (Fabr.)
- SIREX PENNSYLVANICA. *Degeer. Ins.* vol. iii.
p. 393. pt. 1. pl. 30. fig. 13. (Fabr.)

DESCRIPTION.

Head ferruginous: *vertex* a little grooved, a blackish line through the stemmata passes upon the posterior orbits: *antennæ* black, four basal joints pale ferruginous, two terminal joints fulvous: *thorax* ferruginous, sutures blackish: *wings* blackish: *carpus* ferruginous: *tergum* deep black; first segment with a small obsolete spot each side, yellow; second segment yellow, with an inconspicuous longitudinal black line; remaining segments with an oblong-triangular yellow spot on the base of each; terminal spine, and valves of the oviduct, ferruginous: *pectus* black, a large ferruginous spot beneath the anterior wings: *feet* pale ferruginous; thighs above, and posterior pair entirely, black: *venter*, with the segments slightly tinged with piceous.

OBSERVATIONS.

The specimen above described, was taken on the bank of the Missouri river. It inhabits many parts of the Union, and is a very fine species.

The right figure.

PLATE XXXII.

POMPILUS.

GENERIC CHARACTER.

Labrum inserted under the nasus; eyes entire; stemmata three; antennæ as long as the head and trunk, in the female convoluted towards the tip; mandibles unarmed, or with one or two teeth; maxillary palpi longer than the labiales, three last joints nearly of equal length; superior wings not folded longitudinally; radial cellule of moderate size; cubital cellules three, the first elongated; second and third subequal, nearly square, receiving the two recurrent nervures; fourth cellule rudimental; feet elongated.

OBSERVATIONS.

These insects associate by pairs, and make their nest in the earth. The female digs a hole in a sunny bank or declivity; when this is accomplished, she goes in search of a spider or a caterpillar, which she punctures with her sting, and places at the bottom of her nest. Having deposited an egg, either in or upon the

prey, she closes the hole with earth, and abandons it. The young, hatched from the egg, has an abundant and convenient supply of food, in the body of the interred insect. Descending the Arkansaw river, with Major Long's party, I was one day surprised to see a species of this genus, dragging along the ground the body of the gigantic Bird-catching spider, the *MYGALE avicularia*, or a very closely allied species.

These insects are lively and active, flying rapidly from place to place for short distances, running briskly on the earth, vibrating their antennæ, and raising a little, and then depressing their wings, which are reclined upon the back.

The female is armed with a sting, and may be distinguished from the male by having twelve joints to the antennæ, whilst those of the male have thirteen joints.

Latreille was the first to separate this group from *SPHEX*, under the name of *PSAMMOCHARES*, but in his subsequent works, he adopted the more recent name of *POMPILUS*, given by Fabricius.

POMPILUS FORMOSUS.

SPECIFIC CHARACTER.

Polished bluish-green; wings rufous, with a dusky terminal submargin.

SYNONYM.

POMPILUS FORMOSUS. *Nobis. Western Quarterly Reporter*, ii. p. 76.

DESCRIPTION.

Body bright greenish, a little tinged with bluish, and in some lights changing to dull purplish, sericeous: *antennæ* black: *feet* black with a green reflection: *wings* bright golden rufous; at the extreme base, black; terminal submargin of the superiores, and terminal and inner submargins of the inferiores, dusky; the corresponding margins pale.

PLATE 42.

OBSERVATIONS.

This large and splendid species occurred within a hundred miles of the Rocky Mountains, on the banks of the Arkansaw river. It was not uncommon, and in consequence of the striking colour of the wings, as well as of its slow and steady flight, it was readily observed and taken. It was occasionally found perched on flowers, in company with *STIZUS grandis*, *Nobis*, and other Hymenopterus insects. The strongest similarity certainly exists between the *P. formosus* here represented, and the *PERPIS marginata*, Beauv., but that species is so much larger, that we cannot believe it to be the same.

The upper figure of the plate.

PLATE 42.

POMPILUS UNIFASCIATUS.

SPECIFIC CHARACTER.

Black; antennæ and large wing spot, yellow.

DESCRIPTION.

Body black, tinged with purplish: *antennæ*, excepting the first and second joints, bright yellow: *wings* violaceous-black; superior pair with a broad yellowish band or spot near the tip of each, abbreviated before the inner margin, and of a subquadrate or nearly orbicular form.

OBSERVATIONS.

On a recent journey, in company with Mr. Maclure, I had the gratification to find this handsome species in the vicinity of Easton, Pennsylvania. I have not seen it elsewhere. Only a single specimen occurred, which is a female.

The middle figure of the plate.

PLATE 42.

POMPILUS TERMINATUS.

SPECIFIC CHARACTER.

Black; wings pale fulvous, with a dusky tip.

DESCRIPTION.

Body black, with a slight purplish tinge: *antennæ* black: *superior wings* pale fulvous, with a broad dusky tip: *inferior wings* paler.

OBSERVATIONS.

This species was brought by Major Long's party. I caught it near the Arkansaw river, about two hundred miles from the Rocky Mountains. But one specimen occurred, which is a female. In the proportion and distribution of the colours of the wings, it resembles *P. discolor* and *annulatus*, Fabr., but in magnitude and colour of the body it is very distinct.

The lower figure of the plate.

PLATE 42.

PLANT. 100. 100.



PHILANTHUS.

GENERIC CHARACTER.

Labrum concealed; eyes not extending to the posterior part of the head, very slightly emarginate; stemmata three; antennæ thicker towards the tip, inserted in the middle of the face; nasus trilobate; mandibles simple; radial cell one, elongated, acute at tip; cubital cells three, the first large, the second small, sessile, receiving the first recurrent nervure, the third subquadrate, elongated at its exterior inferior angle and receiving the second recurrent nervure, an imperfect fourth cellule sometimes exists; feet rather short.

OBSERVATIONS.

In the present order of insects called Hymenoptera by Linné, are many species whose manners are highly interesting; living together harmoniously in large communities, and labouring for the attainment of a common object, such species exhibit such eminent proofs of

intelligence, as to stagger the vain theorist in the midst of his speculations, and to render insecure the distinction which he has endeavoured to establish between the blindness of instinct and the splendid nature of reason.

But the far greater portion associate by pairs, in their perfect state, for the important purpose of continuing their race, and of these are the species of the genus under consideration. It has been long known that the *PHILANTHI* are parasitic; the female digs a hole in the earth for the reception of her egg, with which she places the body of an insect that she had killed for the nurture of her young; she then completes her task by covering the hole with earth. Latreille gives the following interesting account of the *P. apivorus* of Europe. It is a dangerous enemy of the domestic bee. The female digs a horizontal gallery about a foot in depth in a sloping bank of light earth exposed to the influence of the sun; she separates the earth, and carries it to the surface by means of her mandibles and feet. When the nest is thus completed, the parent visits the neighbouring flowers for the purpose of obtaining a honey bee; she seizes her victim, and kills it by piercing it with her sting at the junction of the

head with the thorax, or of the thorax with the abdomen, and transports it to the bottom of the gallery. As each female deposits at least five or six eggs, the consequence is that the same number of bees must be destroyed. In an extent of ground about one hundred and twenty feet long, Mr. Latreille counted from fifty to sixty females actively employed in making their nests, these of course destroyed about three hundred bees. Let us then suppose a surface of country about six miles square, a fiftieth part of which would afford a proper situation for the operations of the females of this species of *PHILANTHUS*; these would be a sufficient number to destroy fifteen thousand of those useful insects. The eggs are white, nearly cylindrical, rounded at the two ends. The larvæ resemble those of the bee. The covering of the pupa is a thin pellicle.

Fabricius first applied the name *PHILANTHUS*; but Latreille divided the group which his predecessor established under that name into two genera, retaining the appellation for the present group, and applying that of *CERCERES* to such as have denticulated mandibles, and the second cubital cellule petiolated. The former were

called SIMBLEPHILUS, and the latter PHILANTHUS, by Jurine.

The name of this genus is compounded of the Greek words $\phi\iota\lambda\epsilon\omega$, I love, and $\alpha\nu\theta\omicron\varsigma$, a flower.

PHILANTHUS CANALICULATUS.

SPECIFIC CHARACTER.

Pale yellow; vertex, disk of the thorax, and incisures of the tergum reddish-brown.

SYNONYM.

P. CANALICULATUS. *Nobis. Western Quarterly Reporter*, vol. ii. p. 79.

DESCRIPTION.

Body pale yellow; *vertex* reddish-brown; *front* with two longitudinal reddish-brown lines passing through the base of the antennæ; *antennæ* rufous, black at tip: *mandibles* black at tip: *superior wings* with a longitudinal brownish line on the middle from near the base to the tip;

PLATE 49.

radial cellule rounded at tip, and at its inferior angle descending to meet the superior angle of the second cubital cellule, which is triangular: *tergum* with a transverse groove on the middle of each segment, and a marginal smaller one; incisures reddish-brown.

OBSERVATIONS.

When traversing the Arkansaw region with Major Long's party, I obtained a single specimen of this insect, which is a male; it is so very similar in general appearance and colour to *CERCERIS bidentata*, Nob. that but for its generic differences, I should almost have been led to consider as a mere sexual variety of that species. But it cannot be placed in the genus *CERCERIS*, as the mandibles are entirely unarmed within, and the second cubital cellule is not petiolated, and the eyes are not emarginated.

The upper right figure of the plate.

PLATE 49.

PHILANTHUS ZONATUS.

SPECIFIC CHARACTER.

Black; front, two lines on the thorax and posterior submargins of the segments of the tergum, yellow; feet rufous.

SYNONYM.

P. ZONATUS. *Nobis. Western Quarterly Reporter*, vol. ii. p. 79.

DESCRIPTION.

Body above black: *front* yellow, with two black lines descending from the black vertex to the origin of the antennæ; *antennæ* and *mandibles* rufous, black at tip; base of the head rufous: *thorax*, first segment and *scutel*, each with a yellow line; a large rufous spot each side behind the scutel: *superior wings* with a dusky margin towards the tip; *costal nervure* dull rufous in the middle; *radial cellule* rounded at tip, and at its inferior edge descending in an

angle to meet the superior angle of the second cubital cellule, which is triangular: *tergum* with an obsolete transverse groove on the middle of each segment, and a marginal slender one; posterior submargins yellow: *feet* rufous: *pectus* black: *venter* dull rufous.

OBSERVATIONS.

The specimen which served for this description is a male, which was taken in the same country as the preceding. It corresponds with the *canaliculatus* in the simple form of its eyes and mandibles, and in the shape of the radial and second cubital cellules. These characters justify the separation of the two species from the foregoing, into a distinct subgenus.

The lower left figure of the plate.

PLATE 49.

PHILANTHUS VERTILABRIS.

SPECIFIC CHARACTER.

Black; thorax with a line on the interior and posterior margins, and tergum, with four or five bands of which the anterior one is broadest, yellow.

SYNONYM.

P. VERTILABRIS. *Fabr. Syst. Piez.* p. 303.
Coqueb. Ill. Icon. p. 96, pl. 22, fig. 2.

DESCRIPTION.

Head black; beneath the antennæ yellow; *antennæ* beneath yellow: *thorax* with confluent punctures black; a transverse line before and another behind yellow: *wings* tinged with dull yellowish: *feet* pale rufous: *tibiæ* yellowish on the exterior side: *tergum* with large, deeply impressed, confluent punctures; first segment with a yellow spot each side; second segment with a broad yellow band occupying the basal

half, sometimes slightly interrupted in the middle; third, fourth, and fifth segments with a band on their hind margins, broader each side; sixth segment with a spot each side.

OBSERVATIONS.

Coquebert gave a figure of this species, with a magnified representation of the head, abdomen, and a wing. It is stated to be an inhabitant of Carolina, but it is also found in Missouri and Pennsylvania.

The upper left figure of the plate.

PHILANTHUS POLITUS.

SPECIFIC CHARACTER.

Black, polished; first segment of the tergum with two whitish spots, the other segments with a spot each side, connected by a whitish band.

PLATE 49.

SYNONYM.

P. POLITUS. *Nobis. Long's Second Expedition,*
p. 343.

DESCRIPTION.

Hypostoma, mandibles at base, and anterior line of the orbits as high as the emargination, whitish; *antennæ* beyond the third joint on the inferior side rufous brown, a whitish spot on the basal joint: *thorax* with small, irregular punctures; *collar* with two transverse spots; *wing-scale*, and transverse line on the *scutel*, whitish: *wings* a little dusky towards the tip: *pleura* with a double whitish spot beneath the superior wings: *thighs* black; *knees* and *tibiæ*, excepting a black line on the inner side, whitish; *tarsi* dusky: *tergum* polished; first segment with a transverse ovate spot each side; remaining segments each with a transverse quadrate spot each side, touching the posterior margin, and connected along this margin by a slender, undulated band.

PLATE 49.

OBSERVATIONS.

An inhabitant of Pennsylvania. It may be readily known from the preceding, by its polished appearance.

The lower right figure of the plate.

PLATE 49.





LYC. NAT HIST. N.Y.



PAPILIO.

GENERIC CHARACTER.

Antennæ terminating in a conic-ovate or elongate-ovate, somewhat arquated club; palpi pressed closely to the front, hardly reaching the clypeus, the terminal joint obsolete or very minute; feet all formed for walking, armed with simple claws at tip; superior wings somewhat falcate; inferior wings often tailed at tip, and on the inner margin excised or folded to admit of the free motion of the abdomen.

OBSERVATIONS.

The Caterpillars in this genus are destitute of a hairy or spiny armature; but, when disturbed, they suddenly project from the anterior and superior part of the neck a soft bifid appendage, which diffuses a strong odour. This singular organ, although somewhat formidable in appearance, is yet perfectly harmless; it may, however, serve the purpose of repelling the enemies of the

larva, rather, perhaps, by the odour it emits, than by its menacing aspect.

The pupæ or chrysalids are, for the most part, of an angulated form, with two processes or lobes before; they are secured in an upright position by a silken thread, which passes transversely around the body.

The perfect insects are considered by many observers as the most beautiful part of the creation.

PAPILIO PHILENOR. *Fabr.*

SPECIFIC CHARACTER.

Wings tailed, green-black; posterior pair green, polished, with seven fulvous subocellar spots beneath.

SYNONYMS.

PAPILIO ASTINOUS. *Drury*, vol. i. tab. 11, fig.

1. 4. *Cramer*, *Ins.* tab. 208, fig. A. B.

P. PHILENOR. *Fabricius*, and of *Smith and Abbott's Insects of Georgia*.

DESCRIPTION.

Head black; eyes red-brown, posterior orbits yellow; palpi yellowish before; a white dot behind the base of each antenna; neck with two dots before, and a band of four dots behind.

Thorax black, immaculate: breast dotted with yellow; feet black, anterior trochanters with an obsolete yellow dot; superior wings dark green, sometimes blackish, with whitish crenæ; four or five white spots on the margin, more conspicuous beneath, often obsolete above; inferior wings highly polished, green; six pearl-white spots before the margin; crenæ white; beneath with a yellow spot at base, brownish, with a very broad polished green border, upon which are seven large fulvous spots, each surrounded by a black ring, and marked by a lateral white spot; on the inner edge about six small white dots.

Abdomen green, a little brassy above; a lateral double row of whitish dots; first segment with a single larger spot conspicuous above.

FEMALE larger, colour of the wings brown, with cupreous reflections.

The *Philenor* is one of the most beautiful of

PLATE I.

our butterflies, and is, at the same time, very common.

The plate represents the male in two positions.

PLATE I.



1700



PAPILIO.

For generic characters, see the article on
PAPILIO philenor.

OBSERVATIONS.

In pursuance of his attempt to unite natural and civil history, Linné divided his vast genus *PAPILIO* into several families, of which he named the first Equites or Knights. This family, containing some of the largest and most beautiful of the insect tribes, was subdivided into Trojans and Greeks. The former were distinguished by red spots on the breast.

The *P. philenor*, which we have already represented, belongs to the division of Trojans. But this arrangement has been abandoned by modern authors, who apply the name of *PAPILIO* only to the Linnæan *Equites*, subdividing the genus into those which have the inferior wings elongated behind in the form of a tail, and those which have them simply rounded in that part.

PLATE 40.

Much has been said and written relative to the acuteness of the sensation of pain in insects, and whatever may have a tendency to prevent acts of wanton barbarity ought certainly to be encouraged, as far as it is conformable to truth, but not further. The poet's assertion, that the worm, crushed beneath the foot of the passenger, "feels a pang as great as when a giant dies," cannot be substantiated, and proves nothing, therefore, but that the author declared positively what he merely believed or imagined to be true. My opinion, to the contrary of all this, is founded on such facts as the following. I caught an insect belonging to the present genus, and having impaled it, by passing a pin vertically through its body, it escaped from my hand. The pin being light, and no injurious pressure having been exerted on its body, the insect flew, apparently with its usual facility, to a flower, and unrolling its elongated proboscis, proceeded to extract the sweet fluid from the nectary, as if no mortal wound had been inflicted.

The plant represented in the plate, is the
Aquilegia canadensis.

PLATE 40.

PAPILIO TURNUS.

SPECIFIC CHARACTER.

Wings tailed, yellow with a black margin and abbreviated bands; angle of the tail fulvous.

SYNONYMS.

PAPILIO TURNUS. *Linn. Fabr. Goeze Entom. Beytr.* iii. p. 71. *Herbst. Natursyst. Ins.* iii. p. 136, pl. 41, fig. 3, 4. *Hubner*, pl. fig. 1, 2. *Palis. de Beauv.* p. 119, pl. 2, b. fig. 1, 1. *Catesb. Carolina*, 2, pl. 83.

PAPILIO CAUDATUS MAXIMUS, Carolinianus, *Umbris strisq̄ue nigris.*

PAPILIO ALCIDAMAS, *Cram.* i. p. 62, pl. 38, figs. A, B.—*Goeze Entom. Beytr.* iii. p. 77.

DER KAISERSCHMETTERLING. *Muller, Nat. Syst. Supp.* p. 284 and 496. (*Herbst.*)

PLATE 40.

DESCRIPTION.

Body above black, with a yellow line each side, passing over the origin of the wings, and over the head each side before the eyes: *superior wings* yellow, costal margin black with four black bands, of which the three exterior ones are abbreviated; exterior broad margin black with a series of small white spots and white crenulations on the edge; beneath, the colours are paler, and the dots of the exterior margin are much larger: *inferior wings* yellow; posterior portion black, with six lunules on the margin yellow, the first and last fulvous, the edge deeply crenated, the crenations white; anal angle fulvous edged with white, and with a bright green lunule above, and one or two green spots near it; disk, with an oblique black band, proceeding from the basal band of the superior wings, abbreviated near the black portion of the wing, and curving round and returning upward along the inner margin; *tail* moderate; beneath somewhat like the superior page, but the radiating lines proceeding from the discoidal cellule are black, the marginal lunules are much larger, and have a large fulvous spot in the middle of each, the black por-

tion is much tinged with green, and there are about four fulvous spots above it: *pectus* yellow, with two oblique lateral black lines.

OBSERVATIONS.

This beautiful, though very common insect, has already been noticed by many authors, who, for the most part, unite their testimony in favour of its similarity to the *P. machaon*, Fabr. of Europe. This correspondence is, however, only a general one, for on a particular comparison, a sufficient difference will be evident. It is found as far north as Maine, from whence I have received a specimen sent by Mr. E. Holmes, of Gardineer Lyceum.

The annexed plate represents this species in two positions.

PLATE 40.



LYC. NO. 194. 185



ARGYNNIS.

PAPILIO. *Lin.*

GENERIC CHARACTER.

Antennæ terminated by a short club: palpi divaricating, second joint compressed, broad, hairy; third joint terminating abruptly by a short, slender, acute joint: inferior wings sub-orbicular; anterior feet short, feeble: tarsi with double nails.

OBSERVATIONS.

Many species of this genus are beautifully decorated with spots on the lower surface of the inferior wings, resplendent with all the brilliancy of polished silver, or rivalling the milder, but not less attractive lustre, of precious opal. The superior surface of the wings is varied with red or orange, agreeably relieved by spots or lines of black or brown. The larva or caterpillar is armed with spines, and the pupa or chrysalis attaches itself by the tail to a fixed object, in

order to pass its destined period of quiescent preparation, for its change to the perfect, adult or butterfly state.

Linné included the species in his genus *PAPILIO*, but Fabricius separated them as a distinct group under the name we have here adopted.

ARGYNNIS DIANA. *Cramer.*

SPECIFIC CHARACTER.

Wings above black-brown, with a very broad fulvous exterior margin, in which are a few blackish spots and nervures.

SYNONYMS.

PAPILIO DIANA. *Cramer, Ins.* vol. ii. p. 4, pl. 98, fig. D. E.

LE P. DIANE. *Encycl. Method. Insectes*, pl. 35, f. 2.

DESCRIPTION.

Body above black-brown: *vertex*, and anterior

sides of the *thorax*, ferruginous: *wings* on the basal two-thirds blackish-brown; the outer third pale fulvous, on the superior wings divided by blackish-brown margined nervures, and marked by two distant series of dots of a similar colour, the exterior of which is obsolete; on the margin of the inferior wings the two series of dots are hardly to be traced: *beneath*, on the superior wings, the blackish-brown basal portion has from six to eight ochraceous spots, of which the external ones are longitudinal, and those nearer the base are nearly transverse; intervening between these two sets of spots, are two opalescent spots, placed transversely, and sometimes confluent; exterior third of the wing ochraceous, deeper towards the anterior angle, and with two distinct fuscous spots; inferior wings, on the basal two-thirds reddish-brown, with two small distant silvery spots on the anterior margin, and a series of obsolete dull silvery lines behind the middle; exterior third of these wings ochraceous, with a marginal series of seven short silvery lines.

OBSERVATIONS.

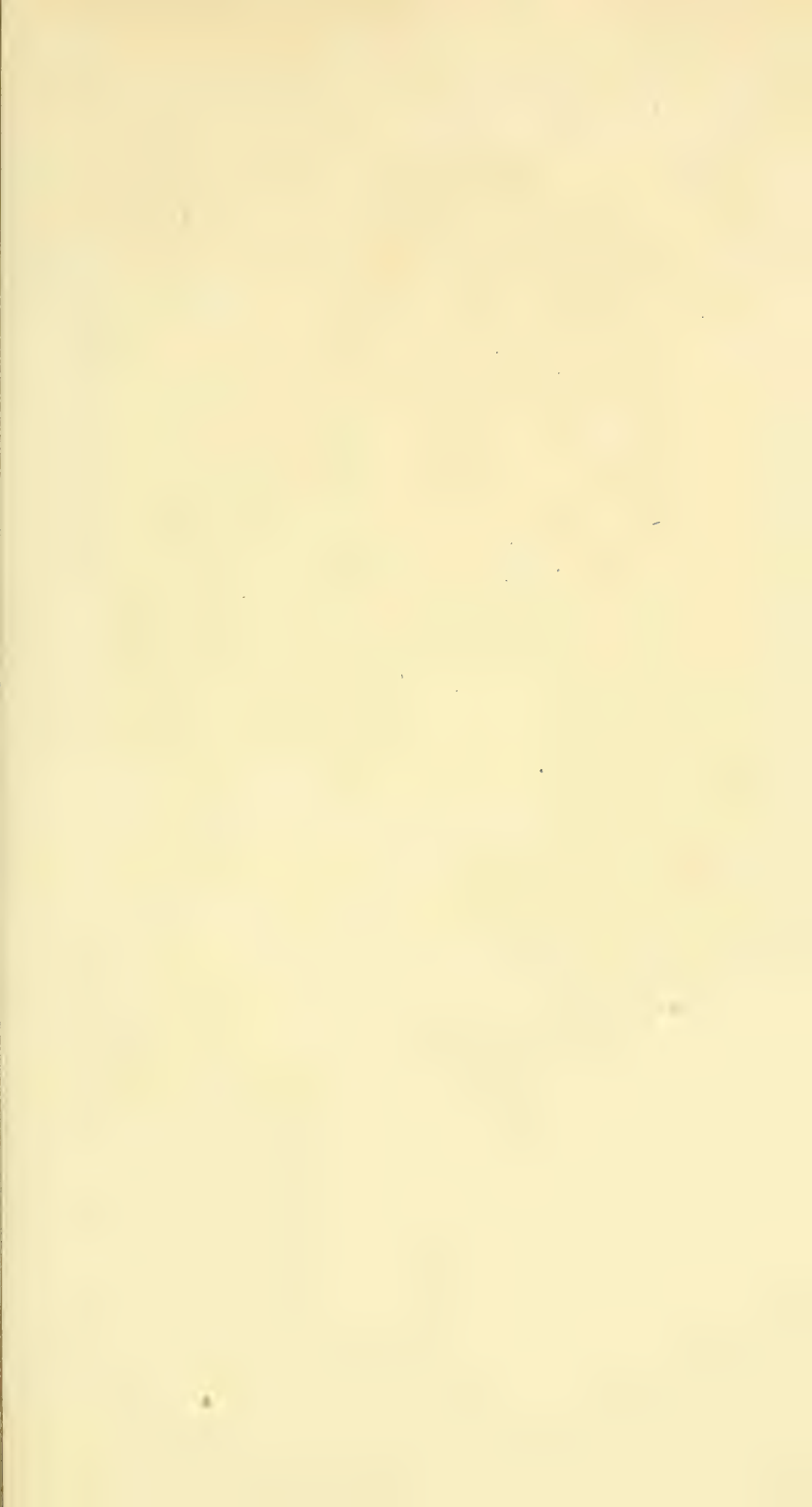
The present species, though not remarkable for any superior gaiety of colouring, interests by

the simple contrast of blackish and pale orange colours, of its superior surface, as well as by the rows of slender silvery lines which decorate the under page of its inferior wings.

I have taken this insect in Georgia, East Florida, Arkansaw, and Missouri, but have not yet met with it in Pennsylvania. Cramer described his specimen, in the collection of Mr. J. C. Sylvius Van Lennep, and states it to have been taken in Virginia. He has applied to it the terrestrial name of the daughter of Jupiter and Latona, and the twin sister of Apollo, in pursuance of the example of Linné, who thus endeavoured to connect Entomology with Mythology and the civil history of antiquity.

The plate represents two views of this species, beneath which is an enlarged palpus.

PLATE XVII.





LYC. NATHUSI NY.



LIMENITIS.

PAPILIO, *Lin.*—NYMPHALIS, *Latr.*

GENERIC CHARACTER.

Antennæ gradually clubbed; club slender, hardly compressed, elongate-obconic; palpi not elongated, second joint not much compressed, the anterior margin not remarkably broader; anterior pair of feet spurious; wings not very much longer than broad; four hinder feet with double nails; abdomen received in a groove, formed by the dilatation of the inner margin of the inferior wings.

OBSERVATIONS.

This is one of the numerous modern genera of Papilionides, that are eminently remarkable by the feeble, abbreviated, and incomplete anterior feet of the species of which they are composed. These feet are usually so short, as to be altogether useless for the purpose of locomotion; they are habitually applied against the breast,

and are altogether destitute of nails. The larvæ are elongated, and feed on leaves, and the chrysalids are suspended by the tail, with the head towards the earth. For the genus *LIMENITIS*, we are indebted to Fabricius; but this learned author has not left us sufficiently obvious characters, by which to distinguish it from his closely allied genus *APATURA*. We are, in fact, inclined to consider them both as sub-genera, as well as many other of the Fabrician genera of *Lepidoptera*.

LIMENITIS ARTHEMIS.

SPECIFIC CHARACTER.

Brown-black; wings indented, with a common white band, and common marginal row of double blue lunules; a series of six ferruginous dots on the posterior wings; venter and lateral line, white.

PLATE XXIII.

SYNONYM.

Nymph. PHAL. ARTHEMIS. *Drury*, vol. ii. pl.
10, fig. 3 and 4.

DESCRIPTION.

Body black: *occiput* with two white points; a short white line behind each eye: *palpi* white on the exterior side: *wings* with a broad common white band a little beyond the middle, intersected by the black nervures which are not margined; a common marginal series of double blue lunules; edge alternating with white and black: *superior wings* with three or four white dots beyond the band, but immaculate between the band and base: *inferior wings* with a series of six fulvous dots between the white band and marginal lunules: *beneath* fulvo-ferruginous, with the white band, marginal lunules, white and black alternating lines of the edge, and white spots of the superior wings, as distinct as those of the superior surface; superior wings, between the white band and base, dark purplish, with two fulvous spots, and two or three whitish or bluish ones; inferior wings dull fulvous between the band and base, with three or four brighter

spots, which are interspersed with bluish: *pleura* with about three white spots at the base of the wings, and another at the base of the superior wings: *coxæ* with a white spot: *anterior pair of feet*, white before: *abdomen* with a white line each side, and a broader one on the venter.

OBSERVATIONS.

This beautiful insect, occurred sparingly in the North-Western Territory, during the advance of Major Long's expedition towards lake Winnepec. I also found it at that lake, as well as at the Lake of the Woods, and in other parts of Upper Canada. On the expedition to the Rocky Mountains, I obtained several specimens in Arkansaw, and Mr. Nuttall has recently sent me one from Cambridge.

Drury first described this insect; his figure is that of a small specimen.

The plate represents two views of the insect, of the natural size.

PLATE XXIII.



ANGUSTIPALIS



VANESSA.

GENERIC CHARACTER.

Antennæ terminated by an abrupt short club ; palpi contiguous, even at the extremity, the two combined, resembling a rostrum ; anterior pair of feet in both sexes, short and very hairy ; the two posterior pairs of tarsi, with double nails.

OBSERVATIONS.

The species which constitute the Fabrician genus *VANESSA*, were referred by Linné, to his comprehensive genus *PAPILIO*.

The larvæ or caterpillars in this genus, live on plants of little altitude, and are often gregarious ; they are armed with numerous, long, rigid, dentated spines, which, like the quills of the Hedgehog, constitute their only defensive weapons. The chrysalids are attached to a fixed object by the tail, and in this reversed posture, quietly wait for the period of final emancipation and perfection.

The larva or caterpillar state of insects, has

been aptly stated by the great Linné, to be a masked condition of the animal, concealing beneath its rude vermicular garb, all the parts of the future perfect insect; the pupa he compared to an infant enveloped in swaddling clothes, after the old fashion. The pupa of some species of the present genus presents a singular appearance: two elevations on the head resemble horns, and a prominence upon the back represents a nose of the human face, and but little aid of fancy is required to assimilate such pupæ to a grotesque mask. Many of these pupæ are worthy of the name of *chrysalids*, by which they were formerly distinguished, being splendidly decorated with spots, resembling burnished-gold, and silver.

VANESSA FURCILLATA.

SPECIFIC CHARACTER.

Wings angular, with a common fulvous band, and two fulvous spots on the superior wings; beneath, brown, with black lineations.

PLATE XXVII.

DESCRIPTION.

Superior wings above black, with a broad fulvous sub-marginal band, which is bifid at the costal margin, having the exterior division terminated by a white spot, and the inner division by a pale yellow one; between the band and the base of the wing, are two fulvous transverse spots; costal rib near the base, with yellow variations: *inferior wings* above black, with a broad fulvous sub-marginal band, and on the black margin is a series of six or seven small sublunate purplish-opalescent spots; all the wings beneath are blackish, with very numerous transverse blacker lineations, some of which are undulated, and deep velvet black; a common pale brownish broad sub-marginal band also with the blackish lineations: *antennæ* yellow at the tip of the club: *venter* dull whitish.

OBSERVATIONS.

This pretty species we observed several times in the North-West Territory, during the progress of the late expedition under the command of Major S. H. Long, over that region. In the vicinity of Fort William, an establishment of the

Hudson Bay Fur Company, it frequently occurred in the month of September, whilst the party remained at that place. It is closely allied to the *polychloros* and *urtica* of Europe, but is sufficiently distinct from either.

The plate presents two views of the insect.

PLATE XXVII.





LYCOPHORIA



PIERIS.

GENERIC CHARACTER.

Feet nearly equal ; nails of the tarsi very apparent, bifid or unidentate ; inferior wings dilated beneath the abdomen, so as to form a groove.

OBSERVATIONS.

This is one of the many genera into which the vast and sumptuous genus *PAPILIO*, of Linné, has been separated. We are indebted for it to Schrank. It nearly corresponds to the group of *DANAI CANDIDI*, and includes the genera *COLIAS* and *PONTIA* of Fabricius, and *GONEPTERYX* of Leach.

These butterflies are natives of various regions of the globe ; some of them are very frequent in almost every field, and must have been noticed by the most casual observer, flitting with a devious direction over the herbage, and on meeting with a companion, mounting aloft in the air, with a hurried and irregular movement. Some species

occasionally alight in great numbers on moist places in roads.

The caterpillar is destitute of the retractile tentacula of the neck, and the chrysalis is of an angulated form, attached to a fixed object by a thread passed around the body, the head being upward.

PIERIS NICIPPE.

SPECIFIC CHARACTER.

Wings slightly crenate, fulvous; terminal margin black-brown; upper pair with a black abbreviated line before the middle on each page; inferior pair with abbreviated ferruginous lines and spots.

SYNONYM.

PAPILIO NICIPPE. *Cramer*, tab. 210, fig. C. D.
Herbst. Natur. Ins. pt. 5, p. 176, pl. 107,
fig. 3, 4.

PLATE XXX.

DESCRIPTION.

The black terminal margin of the upper wings extends along the costal margin nearly to the middle; the black transverse line on this pair of wings is very short, and consists of two curvatures; this curvilinear line appears also on the inferior surface, which is yellow, very slightly tinged with fulvous on the disk, with a blackish point at each indentation of the edge, and an ovate bright fulvous spot near the base; the black terminal margin of the inferior wings has a prominent undulation in the middle; the inferior surface of this pair of wings is yellow, marked by numerous brownish or ferruginous abbreviated transverse lines, a minute black point in the centre of the wing, and two or three more obvious, irregularly undulated, ferruginous, oblique lines: *head* and *thorax* above, blackish: *antennæ* blackish, beneath white, with black incisures: *feet* whitish: *abdomen* black, each side with a yellow line: *venter* with yellow incisures.

OBSERVATIONS.

It is said by Cramer to inhabit Virginia, but it is also found in Pennsylvania, and in all the

southern States. It is subject to some little variations; the fine fulvous spot near the base of the inferior surface of the upper wings, is sometimes white, and the oblique lines under the inferior wings, differ in width and distinctness.

The plate represents two views, of the natural size.

PLATE XXX.



LYC. LEAT. HISTRIX.



HIPPARCHIA.

GENERIC CHARACTER.

Antennæ with a slender, somewhat fusciform, or trigonate-orbicular club; palpi meeting above the tongue, with the second joint very much compressed, and much longer than the first; anterior pair of feet shorter than the rest, and often very hairy; feet of the other legs with double nails; hinder wings somewhat orbiculate-triangular, with the internal margin excavated to receive the abdomen; the middle cell closed behind, from which part the nervures radiate; the outer margin entire, or with acute or obtuse indentations. (Leach.)

OBSERVATIONS.

We adopt the generic name from Fabricius. It is the *MANIOLA* of Schrank, *SATYRUS* of Latreille, and of course, *PAPILIO* of Linné. The genus is numerous in species, and the wings of many are beautifully ornamented with eye-like spots. The caterpillar is downy and bimucronate

behind. The pupa is suspended by the tail; it is angulated, bimucronate on the front.

HIPPARCHIA ANDROMACHA.

SPECIFIC CHARACTER.

Wings brown, with sub-marginal blackish spots; beneath paler, sub-perlaceous, with a series of ocellate spots.

SYNONYM.

OREAS MARMOREA ANDROMACHA. *Hubner.*

DESCRIPTION.

Body above, and the superior surface of the *wings*, brown: *anterior wings* beyond the middle, with a broad paler band, bifid before, and including a series of four fuscous oval spots, or epupillate ocellæ, of which the second, and sometimes the third, are small, and the posterior one largest; between the band and the exterior edge is a single narrow pale line, sometimes obsolete;

exterior edge alternately white and black : *posterior wings* with a narrow, fuscous, angulated line across the middle, and a broad pale band beyond the middle, in which is a series of five fuscous epupillate ocellæ, with a yellow iris, the third smallest, then the fifth, the first being largest ; exterior margin slightly tinged with rufous, and with one or two fuscous lines : *beneath* perlaceous, with a brown narrow band before the middle, and another rather beyond the middle ; beyond which, is a broad lighter perlaceous band, in which, on the superior wings, are four epupillate ocellæ, the two or three anterior ones small ; and on the inferior wings are six ocellate spots, consisting of a fuscous spot surrounded by a yellow line, and having a white pupil ; first spot distant, third small, fifth double ; exterior margin with a yellow line.

OBSERVATIONS.

Two specimens of this insect were presented to me by Mr. Thomas Nuttall, who obtained them in Arkansaw. It seems probable, that they also inhabit the southern Atlantic States, as Hubner has given a plate of the insect. It has not been found so far north as Pennsylvania.





HIPPARCHIA.

For Generic Characters, see *HIPPARCHIA andromacha*.

HIPPARCHIA SEMIDEA.

SPECIFIC CHARACTER.

Wings brown ; inferior pair marbled beneath.

DESCRIPTION.

Body black, immaculate : *antennæ* fuscous, beneath bright rufous towards the tip, the club very gradually formed : *superior wings* brown, the costal margin with alternate transverse black and yellow lines, exterior margin with alternate black and white spots ; beneath dull ochreous, with obsolete, transverse, abbreviated, blackish lines ; costal and broad tip margin alternated with vivid black and white lines ; *inferior*

PLATE 50.

wings dark brown; towards the posterior margin obscure ochreous, with obsolete, abbreviated, blackish, transverse lines; posterior margin with a slender black line and dirty white edging; beneath marbled with black and white, the black prevailing across the middle and base of the wing.

OBSERVATIONS.

Many of the insects belonging to this genus are decorated with beautiful colours, and with eye-like spots upon the wings; but the present species is of a more simple and unassuming character. Without any imposing attractions to arrest the eye, it exhibits an agreeable neatness in the disposition of the contrasting colours, on the inferior surface of the wings. But its chief title to our attention is the great altitude of its native climate. It inhabits the bald summits of the White Mountains of New-Hampshire, and appears to be limited to that inhospitable region. Mr. T. Nuttall sent me a specimen some time since, taken by himself; and Mr. Charles Pickering of Salem, has recently presented me with an individual in an

excellent state of preservation, from which the accompanying plate has been taken.

The plate exhibits two views of the insect.

PLATE 50.



LYC. NASTRISSE

MELITÆ.

GENERIC CHARACTER.

Antennæ with a short, somewhat broad, compressed terminal club; palpi divaricating, hairy, second joint compressed, terminal joint acicular, half the length of the preceding joint; inferior wings suborbicular, somewhat checkered beneath; anterior feet short, feeble; tarsi with double nails.

OBSERVATIONS.

The distinction between this genus and ARGYNNIS, is very slight, too much so, we think, to justify the continuation of it, except perhaps as a subgenus. We have set down the characters pretty much as we find them in the authors, and, although it is obvious, that they do not agree very well with the species we have placed under it, yet there cannot be the slightest doubt of the correctness of the reference. Perhaps the only striking character by which the species may be separated from those of the above

mentioned genus, is that of the somewhat checkered appearance of the inferior page of the posterior wings. A more remarkable distinction may be observed in the larvæ, which are not armed with spines as in ARGYNNIS, but are pubescent, with small fleshy tubercles on the body; the pupa is suspended by the tail.

The genus under the present name, was separated from the Linnæan PAPILIO, by Fabricius.

MELITÆ MYRINA.

SPECIFIC CHARACTER.

Wings slightly indented, fulvous, with black spots and undulated lines; beneath with more than thirty silvery spots, and an ocellate spot near the base of the inferior ones.

PLATE 46.

SYNONYMS.

PAPILIO MYRINA. *Cramer*, ii. p. 141, pl. 189,
fig. B. C.

Fabr. Ent. Emend. p. 145.

Herbst. Natursyst. ix. p. 178, pl. 255,
fig. 3, 4.

DESCRIPTION.

Wings fulvous, slightly indented on the exterior edges; *superior wings* with black, transverse, undulated, and interrupted lines, occupying the basal portion to a considerable distance beyond the middle, the first sublunate, the second double; towards the tip, a transverse series of black dots, then of black angles, confluent with the black nodose edging; inferior surface paler, the series of black dots obsolete; immediately before this series, and near the anterior margin, are two somewhat silvery spots; a somewhat silvery spot within each of the black submarginal angles, the margin destitute of black; *inferior wings* with two, much undulated, nearly parallel lines, from the middle of the anterior margin curve round and terminate

near the base, near which they become confused, they enclose a black spot; a series of black dots, angles, and margin, as in the superior wings; beneath tinged with ferruginous, and varied with ochreous spots, with four transverse series of silvery spots; the second series interrupted by ochreous spots, between the first and second series is a small silvery ocellate spot with a black pupil; beyond the third series, is a series of obsolete brown dots.

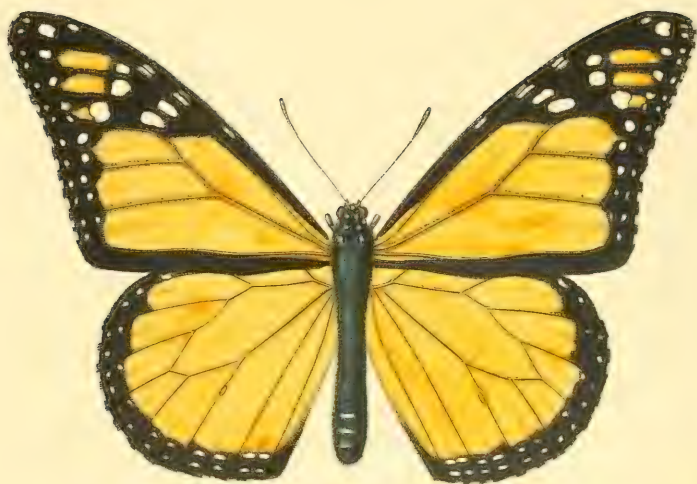
OBSERVATIONS.

This pretty little species is common in various parts of the United States, extending as far south as Florida, and north at least to Massachusetts, from whence Dr. T. W. Harris sent me a specimen. It resembles several foreign species, and particularly the *A. selene*, for which it may be easily mistaken, but on comparison, that species will be found to have the third series of silvery spots widely interrupted in the middle, and the small ocellate spot near the base is not silvery, but black, with a pale pupil; still, however, they are so very closely allied, that in considering them as distinct species. I

rely on the authors whose synonyms are quoted above.

The plant is the **CLAYTONIA VIRGINICA**.

PLATE 46.



LYC. DANAEUS



LYC. DANAEUS

DANAUS.

GENERIC CHARACTER.

Anterior feet spurious in both sexes; antennæ terminated by a club; palpi distant, subcylindric, slender, short; inferior wings rounded, not forming a groove for the reception of the abdomen; ~~nails~~ of the tarsi simple.

OBSERVATIONS.

Latreille established this genus to comprehend the Fabrician genera *EUPLOEA* and *IDEA*. They were included in the genus *PAPILIO* by Linneus, and formed part of his division of *DANAI FESTIVI*.

PLATE 54.

DANAUS PLEXIPPUS.

SPECIFIC CHARACTER.

Wings entire, fulvous, with dilated black veins, margin black, with white dots.

SYNONYMS.

PAPILIO DANAUS PLEXIPPUS. *Linn. Syst. Nat. Gmel.* vol. i. part 5, p. 2278.

PAPILIO PLEXIPPUS. *Cram.* vol. iii. p. 24, pl. 206, figs. E and F. *Herbst. Natur.* vol. vii. p. 19, pl. 156, figs. 1, 2.

CATESBY CAROLINA. Vol. ii. pl. 88.

LINMUS FERUGINEA PLEXIPPE. *Hubner.*

PAPILIO ARCHIPPUS. *Smith, Ins. of Georgia,* vol. i. pl. 6.

DESCRIPTION.

Superior wings above fulvous, anterior margin black, with white dots; exterior margin black, with a double series of white dots; the black at the tip is very broad, and contains a dilated

interrupted, and abbreviated fulvous band and several pale fulvous spots; posterior margin black, immaculate; beneath as above, but the spots are of a purer white; *inferior wings* entire, sometimes a little crenate, fulvous, with a black posterior, and half of the exterior margins black, the former with a double row of white spots, of which those of the middle are sometimes nearly obsolete, outer margin with a single series of three or four white spots; nervures of the disk margined with fuscous, with an elevated spot behind the middle, on the third nervure from the inner margin; beneath ochreous, in other respects resembling the superior surface, but the spots are of a purer white and larger, the nervures are more dilated, black, edged more or less deeply with white: *body* black, with numerous white dots on the trunk, and a few on the head, and neck above: *feet* blued black.

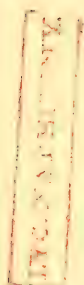
OBSERVATIONS.

The black margin of the superior surface of the wings has an opalescent gloss in a particular light. The larva is annulate with black and white, with two slender processes on the ante-

rior part of the body, and two on the posterior part. The pupa is of a delicate green colour, with dots of burnished gold. It feeds on different species of ASCLEPIAS, and is very abundant in the neighbourhood of Philadelphia, on the *A. syriaca*, and according to Abbot in South Carolina, on the *A. curassavica*. I consider the present as the *plexippus*, on the authority of Gmelin, who, in his edition of the *Systema Naturæ*, states its native country to be North America. I have of course omitted many synonyms and references which that author has inserted, as I consider them to be doubtful. Catesby's figure cannot be mistaken; he states that the species is "common in most of the northern colonies in America."

The plate presents two views of the insect.

PLATE 54.



ÆGERIA.

GENERIC CHARACTER.

Antennæ fusciform; palpi long, separate, covered with long scales or porrected hair; wings horizontal in repose; abdomen bearded at tip.

OBSERVATIONS.

Fabricius formed this genus for the reception of such species of the genus *SESIA*, as have the palpi prominent, distinct, and covered by elongated scales. As *SESIA* now stands, it differs from the present, by the short palpi, which are covered by short, close-set scales; and their terminal joint is very short, tuberculiform: Lamarck, however, applies the name *SESIA* to the present genus.

The wings in the various species of *ÆGERIA* are chiefly transparent, and the body being slender, with coloured bands in some of the species, they have much the appearance of bees and wasps; whence the names *apiformis*, *vespiformis*, *crabroniformis*, &c., which have been

applied in this genus. Degeer, in his history of one of the species, observes, "the first time that I saw it, I hesitated to take it with my naked hand, believing I had found a wasp."

ÆGERIA EXITIOSA.

DESCRIPTION.

MALE. *Body* steel-blue: *antennæ* ciliated on the inner side, black, with a tinge of blue: *palpi* beneath, yellow: *head* with a band at base, both above and beneath, pale yellow: *eyes* black-brown: *thorax* with two pale yellow longitudinal lines, and a transverse one behind, interrupted above, and a spot of the same colour, beneath the origin of the wings: *wings* hyaline, nervures and margin steel-blue, which is more dilated on the costal margin, and on the anastomosing band of the superior wings: *feet* steel-blue, the coxæ, two bands on the tibiæ including the spines, incisures of the posterior tarsi, and anterior tarsi behind, pale yellow: *abdomen* with two very narrow pale yellow bands, one of which is near the base.

and the other on the middle: *tail* fringed, the fringe margined with white each side.

FEMALE. *Body* very dark steel-blue, with a tinge of purple: *antennæ* destitute of cilliæ; *palpi* beneath, black: *thorax* immaculate: *superior wings* steel-blue, without any hyaline spot: *inferior wings* hyaline, with an opaque margin and longitudinal line; the latter and the costal margin are dilated: *tergum* with the fifth segment bright reddish-fulvous.

PUPA with two semifasciæ of spines upon each of the segments, excepting the three terminal ones, which have a single row only.

FOLLICLE brown, oblong-oval, composed of small pieces of bark and earth, closely connected together by the web of the animal.

SYNONYM.

ÆGERIA EXITIOSA. *Nobis. Journ. Acad. Nat. Sciences*; vol. iii. p. 216.

OBSERVATIONS.

This insect has been for years the cause of great solicitude and regret to all the lovers of fine fruit. Our readers will acknowledge the

fact, when we inform them, that small as it is, it is no other than the silent, insidious destroyer of the peach-tree.

The sexes are so remarkably different from each other, that we should hesitate in yielding our assent to their specific unity, if we were not apprised of the circumstance, that the sexes of many of the species are very unlike each other. In the present instance, the difference is so great, as to render it difficult to construct a good common specific character.

We are indebted to Mr. James Worth, a zealous and careful observer, for the principal part of the accurate information which we possess relative to this formidable insect. The following observations are extracted from a valuable essay, by that gentleman, published in the volume quoted above.

The egg deposited on the side of a glass tumbler, was oblong-oval, dull yellow, and so small as to be only just discernible by the naked eye. Excepting in a state of confinement, he never saw the female at rest, but in one instance, when she was perched on a leaf, which may possibly be the usual place of deposit, though he is inclined to believe that it is made on some part of the trunk of the tree. The larva is of

a white colour, the head being reddish-brown. It is somewhat difficult to ascertain the early movements of the larva, in consequence of its small size; but its destructive career certainly commences about the last of September, or early in October, by its entering the tree probably through the tender bark under the surface of the soil; after having passed through the bark, it proceeds downwards into the root, and finally turns its course towards the surface, where it arrives about the commencement of the succeeding July.

Having attained to its full growth, the larva enters the pupa state, between the first and the middle of July; enveloped in its follicle, it may then be readily discovered close to the trunk, surrounded by the gum which oozes from the wound. The pupa state continues from the tenth of July to the latter part of that month, or beginning of August.

Mr. Worth examined his fruit trees on the tenth of July, when he obtained twenty follicles, and about thirty larvæ; of the follicles, four were empty, the insect having assumed the winged state. The larvæ had all arrived near the surface of the ground, for the purpose of undergoing their great change.

Against the depredations of this insect, many supposed remedies have been prescribed, such as the application of hot water, tanner's bark, and flower of sulphur, to the root of the tree, and soft soap and lime-wash to the trunk; but it is obvious, that no application of this kind can injure the insect, without coming in contact with it whilst it remains in the egg, or infantile state, on the outside of the tree, for after having penetrated to the interior, no superficial application can affect it. The various substances placed around the root of the tree, such as ashes and sand, the uncovering of its base during winter, and covering again for the summer, are also pronounced by Mr. Worth, from his experience, to be inefficient, and even injurious to the health of the tree.

“The best plan of guarding against the ravages of the insect, which I have found, is to examine the trees early in the month of July; take a bricklayer's trowel, and opening the ground around the trunk, the lodgment of the insect will at once be discovered, by the appearance of gum, and it can readily be destroyed; one person can thus examine more than a hundred trees in less than half a day, and very few, if any, of the insects will escape. But in order the more

effectually to destroy them, I would advise, that from the first to the middle of August, some swingling tow, a piece of hairy hide, (the hair inside, but turned over at top,) or some other coarse thing of six or more inches in width, be tied close around the trunk of the tree, the under edge to be a little covered with earth, so as to prevent any passage beneath; about the middle of September remove the bandage, and immediately give the whole trunk of the tree a covering of soft soap or lime-wash, well brushed on, that no spot from the head to the root may remain untouched. Perhaps a decoction of tobacco, or some other wash, might do better; even hot water would be effectual, where the tree was sufficiently hardy to bear the application; or it may be, that the wash would answer the purpose without the bandage, but where the bandage is dispensed with, the wash ought, I think, to be applied about the first of September, or I should have great confidence in a bandage of tobacco leaves or stems; it should be kept on from the first of August to November, and could do no damage by being continued, provided it was not tied so close as to cramp the growth of the tree.

“But there are causes of decline other than

that of the insect, and the principal one is the not stirring of the ground; I apprehend, that the disease called "yellows" is often thus occasioned. Last year my peach orchard was considerably affected; and the ground had not been ploughed for three years, and had become quite covered with grass. In the spring of the current year I had it well broken up, and kept clean during the summer; the trees soon assumed a healthy appearance, and furnished a plentiful supply of fine fruit, and the whole orchard is now in the most flourishing condition, and I believe there will be no difficulty in keeping it in that state."

But my friend Mr. J. Gilliams, has certainly derived great advantage from the use of the cinders of the common anthracite, which is now so generally introduced as a fuel; he opens a small basin around the trunk of the tree, and fills it with the cinders; he informs me that the trees thus treated, have assumed a more healthy appearance than others, and they are not at all infested by this destructive insect.

In Mr. Skinner's very useful paper, the *American Farmer*, (vol. vi. p. 14.) are a few highly important remarks on this subject, by Mr. William Shotwell, of which the following is an extract: "I cleaned a number of trees, and

put a coat of *lime-mortar*, about half an inch thick round the body, then drew the earth up to it. These trees are now perfectly healthy, and there has not been the sign of a worm about them since, although it was five years past, that the experiment was made. I have since tried the same on a great number of trees with equal success."

In the same work (vol. vi. p. 37.) are some interesting observations on the preservation of peach-trees, by Mr. Evan Thomas, jr. from which we gather the following information. On removing the earth from about the roots of some trees of a sickly appearance, he observed a considerable quantity of gum that had exuded from several minute apertures of the trunk ; on opening these carefully with a knife, the larvæ were discovered. They were about one inch long, of a cream colour, the head somewhat depressed, chestnut-brown. "They had perforated the bark about one inch below the surface of the earth, and were devouring voraciously, both the alburnum and liber, leaving the cortex and epidermis as a covering and defence." Having destroyed these depredators, Mr. Thomas applied Forsythe's healing composition to the wounds, with the expectation that it would not only exhibit its

usual efficacy, but that it would also prevent the access of a new colony of the enemy. In this, however, he was disappointed, for on examining the same trees again, at the expiration of about six weeks, he found that a new deposit had been made, and that the young worms were then devouring what their predecessors had left. This fact exhibited the inefficacy of the practice of laying bare the roots during the winter. "About the close of July, many of these insects, having assumed the winged state, soon after deposit their eggs in peach-trees, just beneath the surface; first wounding the bark in different places, which, on examination, appears to have been effected by a blunt pointed instrument. They leave from one to fifty, and in some instances, nearly three hundred eggs in each tree, according to its size and capacity to support the future progeny: these soon appear, but it is difficult to detect them until they have acquired a growth of two or three weeks, when they are four or five lines in length. From this period, their growth is accelerated or retarded in proportion to the quantity of nourishment afforded. In general, however, the pupæ are formed early in October, in the midst of a conglomeration of gum, fibrous and excrementitious matter, and about the close of the

month, the insect issues from the chrysalis, deposits its eggs as before mentioned, and prepares to hybernate, like others of the same tribe, in the roofs of houses, beneath the bark of old trees, &c. The larvæ appear in April, assume the nymph state, and accomplish their final transformation in the course of July. Thus, there are two periods in each year assigned for their production and reproduction: nevertheless, individuals may be seen during the whole season, in almost every stage of existence." Having thus ascertained an important part of the natural history of the species, and the inefficiency of the applications hitherto made with a view to prevent its depredations, Mr. Thomas was led to make another experiment, which, he informs us, has been completely successful. "Remove the earth from about the trunk of the tree quite down to the lateral roots, press with the but end of the pruning knife against the bark in different places; if it appears to adhere firmly, and no gum or moisture issues, a thin coat of the composition described below, may be applied both above and beneath the surface, by a brush or wooden spatula, about two inches broad. Then take Canton matting, (or any other similar substance,) cut into pieces of from six to twelve inches in width,

according to the size of the tree, and of sufficient length to encircle it; bind one of these around the part intended to be secured, by two or three ties of twine or woollen yarn, so that one half shall be below, and the other half above the surface; draw earth, divested of grass or rubbish, to the tree, pressing it with the foot, close to the matting. The insects, governed by instinct, will not lay their eggs in the matting, but will seek elsewhere for a situation congenial with their habits. If, however, there is a clammy moisture, or portions of gum adhering to the main stem or roots, these should be regarded as almost certain indications of worms; every opening, however minute, should be carefully probed, and the direction taken by each worm, ascertained; cut away that portion of the bark only, of which the interior part has been destroyed, until you arrive at the object of pursuit, which must be removed and killed. Having in this manner extirpated all that are to be found, trim the edges of the wounds neatly, and fill up the cavities with a composition consisting of two parts of fresh cow-dung, one part of leached ashes, to each gallon of which, add a handful of ground plaster-of-paris, and as much water as will reduce the whole mass to the consistence of

a thick paste; spread a thin coat of this composition over the part to be covered, and then apply the bandage as before directed. As the ants, and several other insects among the wounded trees, exceedingly and materially retard their recovery, I would recommend the part to be washed with common white-wash, and a little flour of sulphur, or snuff sprinkled over it, before the composition is applied. The latter end of April, and the beginning of September, are the most suitable periods, for those accustomed to it, to begin the search."

Several other gentlemen have particularly observed the peach insect, and of these, we may mention Dr. James Smith, who has given the result of his inquiries, in the sixth volume of the American Farmer, p. 334, and Mr. Reuben Haines, who has published his observations in p. 401, of the same volume. But we think it highly probable, that the practice first proposed by Mr. Shotwell, if carefully and properly carried into effect, will effectually secure the peach-tree from the depredations of the *Ægeria exitiosa*.

Upper Figure—Female.

Middle Figure—Male.

Right Figure—Exuvia of the Pupa.

Left Figure—Follicle.

PLATE XIX.

ÆGERIA OMPHALE.

SPECIFIC CHARACTER.

Body red; abdomen behind and dorsal line black, with blue spots.

SYNONYM.

COSMOSOMA OMPHALE. *Hubner*. Fig. 1. 4. ♂ ♀

DESCRIPTION.

Body bright red: *head* black, with large brilliant blue spots: *antennæ* at tip, whitish: *palpi*, second and third joints red: *thorax* with a black transverse line before, continued over the wings; on the anterior part are four blue spots: *tergum* bright red, with a longitudinal line, abbreviated at base, and tip black; in which colour are four lateral brilliant blue spots, and about seven dorsal ones: *venter*, excepting at base, and each side near the base, black, with a large pure white spot on each side, before the middle; tuft at tip obsolete: *wings* hyaline, nervures

and margins black; the black of the tip wide: *feet* bright red: *intermediate tibiæ* black before: *posterior tibiæ* with a black line before.

OBSERVATIONS.

This very beautiful species was found by Mr. T. Peale in Florida, and was presented to me, for the present plate, by the Prince of Musignano, with whom I agree in the specific name here adopted from Hubner.

The striking contrast of the red and black colours, and the beautiful brilliant vivid azure blue, reflected from the spots of the abdomen, anterior part of the thorax and the head, render this a highly interesting insect.

Lower Figure.

PLATE XIX.



SMERINTHUS.

GENERIC CHARACTER.

Tongue very short; antennæ serrate; palpi contiguous, short, terminal joint tuberculiform, very short; anterior wings angulated; anus simple.

OBSERVATIONS.

Latreille constructed this genus to receive such Linnæan Sphinges as have a very short or indistinct tongue. The species, although closely allied to those of the genus from which they were separated, are yet distinguishable by their form of body and habits of life. They are short, robust, and generally remarkable by a handsome display of colours. They are never seen to shoot, like meteors through the air, from flower to flower, balancing the body at each, in order to extract sweets from the nectary, but, unlike the Sphinx and Humming-bird, their flight is heavy and reluctant, and they receive food only in the state of repose.

The larvæ are generally elongated, with lateral, oblique, coloured lines, and a prominent horn on the upper part of the posterior extremity of the body. They feed on leaves, and undergo their change to the pupa state in the earth, without the care of constructing any regular cocoon.

SMERINTHUS GEMINATUS.

SPECIFIC CHARACTER.

Inner angle of the posterior wings with a large black spot, in which are two blue spots.

DESCRIPTION.

Head tinged with ferruginous before; vertex white: *antennæ* whitish, pectens brown; *thorax* whitish, with a dark brown disk rounded before and gradually dilating behind: *superior wings* varied with brown and cinereous; a dark semi-oval spot at the tip is obvious and remarkable: *inferior wings* yellowish, with a red disk, and a large deep black spot of a similar shape to that of the thorax, including two blue spots.

OBSERVATIONS.

Closely allied to the *ocellata* of Europe, and to the *myops* and *excaecata* of our own country, but it may be distinguished from either by the double blue spot in the black patch on the posterior wings. The *excaecata* I have not seen, and have therefore to rely on Abbott's drawing of that insect, as given by Smith in his splendid work, the "Lepidopterous Insects of Georgia," where it is represented with a single large blue spot, in the place of the two that exist on each posterior wing of the present species. These two spots seem to be constant as well as common to both sexes.

The plate represents two views of the natural size.

PLATE XII.





LAPHRIA.

GENERIC CHARACTERS.

Body elongated; wings incumbent: antennæ divaricating, approximate at base, three-jointed; third joint inarticulate, obtuse, and destitute of a style: front impressed: hypostoma with long rigid hairs: proboscis horizontal, short, without dilated labia: poisers naked: abdomen with seven segments: posterior tibia arquated: tarsi terminated by two nails and two pulvilli.

OBSERVATIONS.

The genus LAPHRIA, of Meigen, is perfectly well distinguished from its neighbouring groups by the above stated traits, and has received the approbation of all recent authors who are willing to keep pace with modern discoveries. The arrangement of the nervures of the wings, particularly of those of the anterior margin, is very similar to that of the wing nervures in the genus ASILUS, as restricted by the same author; but the form of the antennæ, in this case, at once

decides the genus, those of *LAPHRIA* being simple at their termination, whilst those of *ASILUS* are furnished with a very distinct, and generally elongated, setaceous style.

These insects fly swiftly, and the force with which the wings strike upon the air, produces a loud humming sound. They are predaceous, and pursue with voracity smaller and weaker insects, which they seize, and then alight to suck out their fluids. Many species inhabit the United States. Of these, the *thoracius* of Fabricius, and another which I described under the name of *tergissa*, in consequence of the form of body and sounding flight, have been very frequently mistaken for humble-bees, (*Bombus*.)

The larvæ live, probably, in the earth.

LAPHRIA FULVICAUDA.

SPECIFIC CHARACTER.

Black, with cinereous hair; wings blackish; tergum fulvous at tip.

PLATE VI.

SYNONYM.

LAPHRIA FULVICAUDA. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 53.

DESCRIPTION.

Body black, with long cinereous hair: *head* large, transverse; *eyes* deep black: *thorax* varied with black and cinereous, and with short, black hair; two distinct, longitudinal, dorsal, black lines, with a more obvious cinereous band in the middle, which is interrupted by the dorsal lines; two cinereous obsolete points each side behind: *wings* blackish: *halteres* pale at tip: *abdomen* depressed, above and beneath subglabrous, hairy each side; the two terminal segments of the tergum with a common fulvous spot.

Length about three-fifths of an inch.

OBSERVATIONS.

I obtained it at the settlement of *Cote sans Dessein*, on the Missouri river, during a short stay of Major Long's exploring expedition at that place.

Lower right figure.

LAPHRIA SERICEA.

SPECIFIC CHARACTER.

Above with golden-yellow hair; beneath with pale hair; thorax, beneath the hair, dark blue.

SYNONYM.

LAPHRIA SERICEA. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 74.

DESCRIPTION.

Head black; *hypostoma* and *gena* with grayish hair, that of the former tinged with dull yellowish; *vertex* and *occiput* with black hair: *thorax* dark blue, with golden-yellow hair, rather longer and somewhat more dense behind; a fringe of longer black hairs over the insertion of the wings: *pleura* blackish; a few long, pale hairs near the poisers: *poisers* pale: *pectus* and *feet* black, hairy; hair of the former long; hair beneath the anterior and intermediate feet whitish: *scutel* dull chesnut: *wings* hyaline; ner-

vures fuscous, broadly but faintly margined with yellowish-brown, as well as the inner edge: *tergum* dark chesnut-blue, thickly covered by golden-yellow, silky hair: *anus* black, naked: *venter* black-brown, nearly glabrous, with a few whitish hairs, the segments pale on their posterior margins: *abdomen* cylindrical, depressed.

Length four-fifths of an inch.

OBSERVATIONS.

The nervures of the wings are arranged like those of *L. ephippium*, Fabr. Meig. It is an inhabitant of the United States generally.

Lower left figure.

LAPHRIA DORSATA.

SPECIFIC CHARACTER.

Blue-black; head and feet with cinereous hair; nervures of the wings widely margined with fuscous.

PLATE VI.

DESCRIPTION.

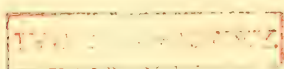
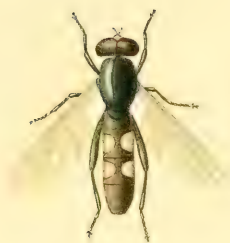
Head black; *anterior orbits* with a white line: *mystax* cinereous; *vibrissæ* black; *stethidium* blue-black, with slight dark cinereous hair; *wings*, nervures widely margined with fuscous, obscuring the anterior part of the wing, and leaving the middle of the cellules on the inner margin almost hyaline: *feet* black, tinged with purplish, and with cinereous hair: *poisers* blackish, paler at base: *tergum* blue-black, with a coppery or purple gloss.

OBSERVATIONS.

It was taken near Philadelphia. The back of the abdomen, although of a dark colour, in a certain light reflects a brilliant coppery or purplish tint. The short nervure which terminates at the apex of the wing, is not only bifid at its origin, as in the *albibarbis*, Meig., but the upper branch joins the nervure above, as well as the lower branch joins the nervure immediately below.

Upper figure.

PLATE VI.



XYLOTA.

GENERIC CHARACTER.

Antennæ three-jointed, inserted on a frontal elevation, nutant; third joint suborbicular, compressed, with a naked seta placed behind the dorsal middle; ocelli three; proboscis with fleshy lips; hypostoma above impressed, near the mouth a little elevated, retuse and subtuberculated: posterior thighs dilated, spinous beneath; onychii two; abdomen with five segments; wings incumbent, parallel.

OBSERVATIONS.

For this genus we are indebted to Meigen. Linné, Gmelin, Degeer, Schranck, and others, referred the species to *MUSCA*; Fabricius and Panzer to *SYRPHUS* and *MILESIA*. In his *Systema Anthiatorum* Fabricius, with Latreille and Falén, included them in the genus *MILESIA*; and a few species were scattered in the genera *MERODON*, *SCÆVA*, *ERISTALIS*, and *THEREVA*, by several authors.

The species are frequently found on flowers, and the larva is supposed to inhabit decaying wood.

XYLOTA QUADRATA.

SPECIFIC CHARACTER.

Blackish; tergum with four dilated subequal ochraceous spots; posterior thighs with a prominent angle near the tip.

DESCRIPTION.

Head golden-yellow, black at base of the antennæ and in a line proceeding to the mouth: *hypostoma* very slightly indented, carinated: *antennæ* ochraceous: *eyes* chesnut: *thorax* dark brassy; with two cinereous lines confluent before, attenuated behind, and abbreviated behind the middle; an obsolete interrupted line each side over the wings: *scutel* on the posterior margin ochraceous: *pleura* and *pectus* with a pale glaucous covering: *feet* ochraceous, thighs black at base; posterior pair black-brassy, their thighs

dilated, with spines beneath, placed irregularly; a prominent projecting angle near the tip: *tergum* black; basal segment on the lateral margin ochraceous; second segment with a large subquadrate, ochraceous spot each side, approaching the middle where it is longer than on the margin, posterior edge ochraceous; third segment with also a large subquadrate, ochraceous spot each side, approaching the middle where it is longer than on the margin, it reaches the basal suture, posterior edge ochraceous; fourth segment ochraceous at tip: *venter* yellowish-white, blackish at tip.

OBSERVATIONS.

The specimen is a female, and was captured in Pennsylvania. By its form of body, and the character of the hypostoma, it approaches the genus *EUMERUS*, Meig.

The upper right figure of the plate.

PLATE VIII.

XYLOTA EJUNCIDA.

SPECIFIC CHARACTER.

Blackish; tergum with four semioval, subequal, ochraceous spots; posterior thighs rather slender, with two series of black spines beneath.

DESCRIPTION.

Head silvery: *antennæ* ochraceous: *eyes* chestnut: *thorax* greenish-brassy, with a grayish spot each side before: *poisers* and *scale* whitish: *feet* whitish, two last joints of the tarsi black; thighs piceous with a slight brassy tinge, posterior pair not remarkably dilated, exterior series of spines nearly equal from near the base to the tip; posterior tibia piceous at tip: *tergum* black, with a slight tinge of green; basal segment polished, immaculate; second and third segments each with a large semioval ochraceous spot on each side, approaching the middle and attaining to the lateral edges, but not reaching either the base or tip of the segment; fourth segment ob-

scure, brassy, polished : *venter* yellowish-white, black at tip.

OBSERVATIONS.

The specimen is a male. I caught it on the banks of St. John's river, in East Florida, during a short visit to that country in company with Messrs. Maclure, Ord, and T. Peale. A specimen, in the collection of Mr. William W. Wood, was taken near Philadelphia.

The upper left figure.

XYLOTA PROXIMA.

SPECIFIC CHARACTER.

Blackish ; tergum about six-spotted ; posterior thighs dilated, with a large rufous spot on the middle.

DESCRIPTION.

Head yellowish-silvery : *vertex* black : *antennæ*

PLATE VIII.

ochraceous: *thorax* blackish, two gray oblong-triangular spots on the anterior margin, connected with a lateral line that extends nearly to the origin of the wings: *poiser* and *scale* whitish: *pleura* and *pectus* silver-gray: *feet* ochraceous; *posterior thighs* much dilated, with a very distinct rufous spot each side, and another at base, posterior half of the inferior edge more prominent, spines extending from near the base to the tip; *posterior tibia* blackish, rufous in the middle and at base: *tergum* black; first segment with an ochraceous lateral margin and basal edge; second segment with a large semioval ochraceous spot each side; third segment with a small transversely semioblong-oval ochraceous spot each side at base; fourth segment with a transverse pale ochraceous line each side at base, and posterior margin: *venter* yellowish-white, blackish at tip.

OBSERVATIONS.

Very common in the neighbourhood of Philadelphia, on flowers. I obtained a variety in Virginia, of which the spots of the tergum are grayish-glaucous. The two sexes are similar in colour.

It is closely allied to *Syrphus pipiens* of Fabri-

cious; but the posterior thighs of that species, if we may rely upon Panzer's figure, are widest in the middle, whereas in this species they are widest near the tip, and the rufous band is on the inside as well as on the exterior side.

The lower left figure.

XYLOTA HÆMATODES.

SPECIFIC CHARACTER.

Brassy-black; abdomen rufous; wings fuliginous.

SYNONYM.

MILESIA HÆMATODES. *Fabr. Syst. Antl.* p. 193.

DESCRIPTION.

Head black-brown: *hypostoma* and *front*, in a certain light, silvery: *vertex* polished: *thorax* brassy-black: *humerus*, in a certain light, silvery: *scutel*, colour of the thorax: *wings* fuli-

ginous: *pleura* and *pectus* nearly black, polished: *feet*, anterior pairs tinged with brownish: *posterior thighs* much dilated, immaculate, spines short: *tergum* bright rufous, basal segment black, second segment with a longitudinal black line at base: *venter* paler rufous.

OBSERVATIONS.

A native of the southern states. I obtained two specimens in East Florida, one of which is represented on the annexed plate. It was first described by Fabricius, in his *Systema Antliatorum*, from the collection of M. Bosc, but no figure has been hitherto given of it.

The lower right figure.

PLATE VIII.





SYRPHUS.

GENERIC CHARACTER.

Antennæ separate at base, shorter than the head, advanced, nutant, triarticulate; third joint orbicular or oval, compressed, with a seta near the dorsal base; hypostoma tuberculated, but not very remarkably prominent; feet simple and slender; wings incumbent parallel, central transverse nervure placed almost perpendicularly.

OBSERVATIONS.

This genus was included by Linné in his comprehensive genus *MUSCA*. In the *Systema Antliatorum*, Fabricius constructed a separate genus under the name of *SCÆVA*, for the reception of many insects that he had formerly placed in his genus *SYRPHUS*. But it is now ascertained that nearly or quite all the species retained in the latter belong to other genera, and particularly to those of *VOLUCELLA* and *SERICOMYIA*. The name *SYRPHUS* being therefore disengaged, has

been very properly restored to its old species, and, as far as I can learn, the name of *SCÆVA* is rejected by Meigen. Consequently, the nine new species which I described in the Journal of the Academy of Natural Sciences (vol. iii. p. 88.) under the name of *SCÆVA*, must now be considered as belonging to the genus *SYRPHUS*. As it now stands, this genus is closely allied to *MILESIA*. Not one of our numerous species was known to Fabricius.

The larvæ feed on Aphides or Plant-lice; the body is in the shape of an unequal cone, large behind, attenuated to a point before, and destitute of distinct feet. In order to suck out the juices of their victim, they raise it from the surface of the plant on which they rest. When about to enter the pupa state, they attach themselves by a glutinous secretion to a fixed object, the body contracts, and the anterior portion, which was previously attenuated, becomes the most dilated part.

PLATE XI.

SYRPHUS CYLINDRICUS.

SPECIFIC CHARACTER.

Blackish, varied with yellow; abdomen, excepting the base of the tergum, yellow-ferruginous.

DESCRIPTION.

MALE. *Head* yellowish-white, somewhat silvery, polished; *antennæ* more deeply tinged with yellow; tubercle of the *hypostoma* a little dusky at tip; *eyes* chesnut: *thorax* dark greenish-olivaceous, spot before the wings and *scutel*, yellow: *pleura* black with yellow spots: *pectus* black: *feet*, including the *coxæ*, pale yellow: *tergum* yellowish-ferruginous; first segment and base of the second black; tip of the second segment either dull ferruginous or blackish; third segment dull yellow, somewhat ferruginous at base and tip: *venter* yellow at base, ferruginous towards the tip.

PLATE XI.

OBSERVATIONS.

I have seen but two specimens, which are both males, taken near Philadelphia. In form of body it resembles the *S. scalaris*, Fabr., and *tæniatus*, Meig., of Europe.

The upper figure of the plate.

SYRPHUS OBSCURUS.

SPECIFIC CHARACTER.

Blackish-green; tergum with lateral full cupreous triangles.

DESCRIPTION.

MALE. *Head* metallic black, tinged with green: *antennæ*, third joint dull testaceous: *stethidium* entirely blackish-green, polished, immaculate: *feet* dull testaceous, thighs blackish at base: *tergum* velvet-black, slightly tinged with green; second segment with a dull coppery semioval spot on the middle of the lateral mar-

gin, extending on the edge to the base and tip; third and fourth segments each with a large dull coppery triangular spot on each side at base, approaching closely towards each other on the basal margin, and extending on the lateral edge nearly to the tip; an obsolete, longitudinal, central, dull coppery line, widely outspread on the posterior margin, so as to attain to the posterior angles: *venter* purplish or dusky, highly polished.

OBSERVATIONS.

Of this also I have seen but two specimens, both of which are males; one was taken near Philadelphia, and the other at Chinquoteage, Virginia.

The lower figure of the plate.

PLATE XI.

SYRPHUS OBLIQUUS.

SPECIFIC CHARACTER.

Thorax green-bronze, with a yellow dot before the wings; tergum bounded and spotted with yellow.

SYNONYM.

SCÆVA OBLIQUA. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 89.

DESCRIPTION.

Head yellow, a dusky line above the antennæ; *orbits* yellow to the vertex; *antennæ* blackish on the superior edge: *thorax* dark green-bronze; a yellow spot before the wings: *scutel* bright yellow: *feet* whitish; *anterior tibia* and *tarsi* a little dilated, the latter with short joints; *posterior thighs* with one obsolete band, their *tibia* two banded; extremity of all the *tarsi* dusky: *tergum* black; first segment with a yellow basal edge; second segment with a band at base, inter-

rupted into two oblong triangles, and a broader one on its middle, yellow; third segment with one arquated band; fourth and fifth segments each with an oblique oblong-oval spot each side, and two longitudinal lines on the middle, yellow.

Variety β Band of the third segment of the tergum interrupted into four small spots.

OBSERVATIONS.

A very pretty insect, not uncommon in gardens on flowers, leaves, &c. The sexes are alike in colour and markings.

The left figure of the plate. (This figure represents the variety.)

PLATE XI.

SYRPHUS POLITUS.

SPECIFIC CHARACTER.

Thorax with a yellow line each side, and a cinereous dorsal one; tergum with yellow bands and quadrate spots.

SYNONYM.

SCÆVA POLITA. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 88.

DESCRIPTION.

Head yellow, above the antennæ dusky silvery: *thorax* somewhat olivaceous, a yellow line above the wings, and a dorsal cinereous one: *scutel* dusky yellowish, with a paler margin: *feet* whitish: *tergum* black; basal segment with the basal and lateral edges yellow; second segment with a transverse yellow band on the middle; third and fourth segments with a band and longitudinal line, each side of which latter is a large, transverse, subtriangular spot, yellow;

fifth segment with the yellow spots and base, but destitute of the longitudinal line.

OBSERVATIONS.

This species, like the preceding, is very agreeably ornamented with the yellow lines and spots that characterize it, and like that species it is not unfrequent, yet I have but two imperfect specimens, which are both females.

The right figure of the plate.

PLATE XI.





ENCLOSURE



LEPTIS.

GENERIC CHARACTER.

Antennæ short, approximate, at base, triarticulate; basal joint cylindric; second cyathiform; third conic, not annulated, and terminated by a long seta; stemmata three, situated on the vertex; proboscis and palpi exerted, the latter pilose, with its second articulation elongated; wings divaricated; halteres naked; onychii three; abdomen consisting of seven segments.

OBSERVATIONS.

The species were arranged by Linné in his genus *MUSCA*. Fabricius, Meigen and Latreille, in their earlier works, removed them from *MUSCA*, to form a distinct group, to which they applied the name of *RHAGIO*, including, as it then stood, some species that have been since separated, and now stand under the name of *ATHERIX*. Those authors, in their subsequent publications, finding that the appellation of *RHAGIO* presented the inconvenience of a collision

with that of a Coleopterous genus (*RHAGIUM*), united in rejecting the word, and supplied its place with that of *LEPTIS*, which I have adopted.

Some of the species are common; they are predaceous; the larvæ are cylindrical, apodal, with a small horny head, and live in the earth.

LEPTIS ORNATA.

SPECIFIC CHARACTER.

Velvet-black; thorax and abdominal bands with whitish hair; wings hyaline; feet white.

SYNONYM.

LEPTIS ORNATA. Nobis. Journ. Acad. Nat. Sciences, vol. iii. p. 34.

DESCRIPTION.

Hypostoma and *front* with silvery white hair: *thorax*, particularly on its lateral margins, with silvery hair very slightly tinted with yellow: *pleura*, *pectus* and *coxæ* black: *feet* pale yellow-

ish: *tarsi*, except at base, fuscous: *poisers* pale yellow: *tergum* on the basal segment nearly covered with silvery hair; remaining segments each with a silvery band behind, occupying nearly one half of its length, and interrupted in the middle: *venter* immaculate.

OBSERVATIONS.

The specimen is a male. The species is an inhabitant of Pennsylvania, and probably also of several of the neighbouring states. It is very closely allied to the *thoracica* of Fabricius, with which it has probably been hitherto confounded; but it differs from that beautiful species by its pellucid wings, pale tibia, broader bands of the tergum, colour of the thoracic hair, and by having silvery hair on the hypostoma and front. It belongs to the second division of the genus, in which the palpi are cylindrical, or slightly clavate and recurved.

The upper left figure of the plate.

PLATE XIII.

LEPTIS ALBICORNIS.

SPECIFIC CHARACTER.

Pale testaceous; tergum with a dorsal series of black spots; wings spotted and tipped with fuscous.

SYNONYM.

LEPTIS ALBICORNIS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 38.

DESCRIPTION.

Body above rufo-yellowish: *hypostoma* chestnut: *antennæ* yellowish-white; seta black: *palpi* and *rostrum* white: *cheeks* somewhat glaucous, with whitish hair: *thorax* three or five lined with black, the three intermediate lines being obsoletely separate: *scutel* immaculate: *wings* hyaline, costal margin tinged with yellowish; *nervures*, particularly those of the inner margin, those that are transverse, stigmata and tip of the wing margined with fuscous, more obvious and

dilated at the tip of the wing, and on each side of those transverse nervures that are beyond the middle: *tergum* with a large rounded black spot on each segment, and a black line on the lateral edge.

OBSERVATIONS.

Very closely allied to *L. scolopacea*, Fabricius, of Europe, but it differs from that insect in several particulars, as in the colour of the antennæ, stethidium, feet, &c. The specimen is a male.

The upper right figure.

LEPTIS VERTEBRATA.

SPECIFIC CHARACTER.

Pale testaceous; tergum with a dorsal series of black spots; wings immaculate.

SYNONYM.

LEPTIS VERTEBRATA. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 38.

DESCRIPTION.

Head black ; terminal joint of the *antennæ*, excepting the *seta*, and *palpi*, pale : *stethidium* blackish (in the female pale testaceous, with obscure lineations) : *thorax* with two obsolete cinereous lines, and a pale humeral spot : *scutel* and *poisers* pale-yellowish : *wings* hyaline, costal margin tinged with testaceous, nervures brown : *feet* pale testaceous, *coxæ*, *tarsi*, half of the posterior thighs, and posterior tibia, black (*coxæ* of the female colour of the stethidium) : *tergum* yellowish, segments each with a fuscous or blackish spot above, and a line on the lateral edge ; the dorsal spots of the posterior segments are extended into bands : *venter* blackish on the terminal joints.

OBSERVATIONS.

This species, as well as the *albicornis*, belongs to Meigen's first division of the genus, in which the palpi are elongate-conic, and incumbent on the proboscis. It resembles the *albicornis*, but the wings are immaculate, &c.

The lower left figure.

PLATE XIII.

LEPTIS FASCIATA.

SPECIFIC CHARACTER.

Velvet-black; thorax with golden-yellow hair; tergum fasciate with white; wings hyaline with a large brown stigma.

SYNONYM.

LEPTIS FASCIATA. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 37.

DESCRIPTION.

The fundamental colour of the *thorax* is the same with that of the other parts of the body; *hypostoma* in a particular light cinereous; *pleura* and *pectus* dark lurid; *poisers* fuscous, *scapus* whitish; *wing nervures* brown, *stigma* rather large, brown and distinct; *tergum* on the posterior margin of each segment banded with yellowish; *venter* immaculate; *feet* whitish, *thighs* reddish-brown towards their bases, *tarsi* dusky at tip.

OBSERVATIONS.

Inhabits Pennsylvania. The nervures of the wings are arranged as in Meigen's second division, and the insect has much the appearance in miniature of *L. thoracica* of Fabricius.

The lower right figure.

PLATE XIII.

COENOMYIA.

GENERIC CHARACTER.

Antennæ porrect, triarticulate, first joint rather long, cylindrical; second, cyathiform; third, conical, eight ringed; seta none; palpi elevated; proboscis short; scutel bidentate; wings horizontal, crossed upon the tergum.

OBSERVATIONS.

We are indebted to Latreille for this genus, which has been adopted by Meigen, who, in his European Diptera, describes but a single species as belonging to it. Fabricius gave the name of *Sicus* to this genus, a designation that Latreille had already applied to a very different group. The present name will therefore be considered as having the priority.

COENOMYIA PALLIDA.

SPECIFIC CHARACTER.

Wings and abdomen yellowish-testaceous; thorax ferruginous.

SYNONYM.

COENOMYIA PALLIDA. *Nobis. In Long's Second Expedition.*

DESCRIPTION.

Head yellowish-testaceous; *orbits* beneath and behind, dark cinereous; *vertex* with an elevated, obtuse, dusky line between the stemmata: *thorax* ferruginous; anterior angles a little prominent, rounded and concave behind, with an elevated line reaching to the origin of the wings: *scutellum* colour of the thorax: *wings* pale yellowish-brown, with margined nervures: *poisers* whitish: *feet* somewhat paler than the thorax: *tergum* polished; posterior segments somewhat sericeous;

second, third, and fourth segments, with three abbreviated series of punctures near their bases.

OBSERVATIONS.

During the recent journey of Major Long's party to the source of St. Peter's river, I obtained three individuals of this interesting species, the only one yet found in North America. They occurred in a small forest of scattered trees, where we halted at our dining hour, in the immediate vicinity of Wennabea's Sauk village on the Pecktannos.

None were observed at any subsequent period of the journey.

PLATE XX.



EXPOSITUM IN MUSEO NATURALI



PANGONIA.

GENERIC CHARACTER.

Wings divaricated ; antennæ porrect, approximate, three-jointed ; first joint cylindrical, second cyathiform ; third joint elongated, subulate, eight-ringed ; proboscis elongated, exerted ; stemmata three ; abdomen of seven segments.

OBSERVATIONS.

This genus is very closely allied to *TABANUS*, the species having a close resemblance to each other ; but, on accurate comparison, we shall agree with Latreille in the propriety of separating them. In fact, the *TABANI* are altogether destitute of the stemmata, and are very different from insects of the present genus in several other characters, such as the form of their antennæ, the disposition of the nervures of their wings, and the comparative length of their proboscis. In some of the species, the stemmata are so small as to require a lens to discover them, but they certainly exist in all. Six species are described

by Meigen as inhabiting Europe; and five extra Europeans are described by Wiedemann.

These insects are inhabitants of warm climates, and are said to subsist upon the honey of flowers; but Meigen suspects that their females feed on the blood of animals, like those of the species of other genera in this family.

PANGONIA INCISURALIS.

SPECIFIC CHARACTER.

Thorax dusty glaucous, with dirty yellowish hair; abdomen dark chesnut, with whitish incisures.

SYNONYM.

PANGONIA INCISURALIS. *Nobis. Journ. Acad. Nat. Sciences*, vol. iii. p. 31.

DESCRIPTION.

Front ochreous: *ocelli* distinct: *hypostoma* dusky: *palpi* and *setæ* of the *proboscis* testaceous:

PLATE XXXIII.

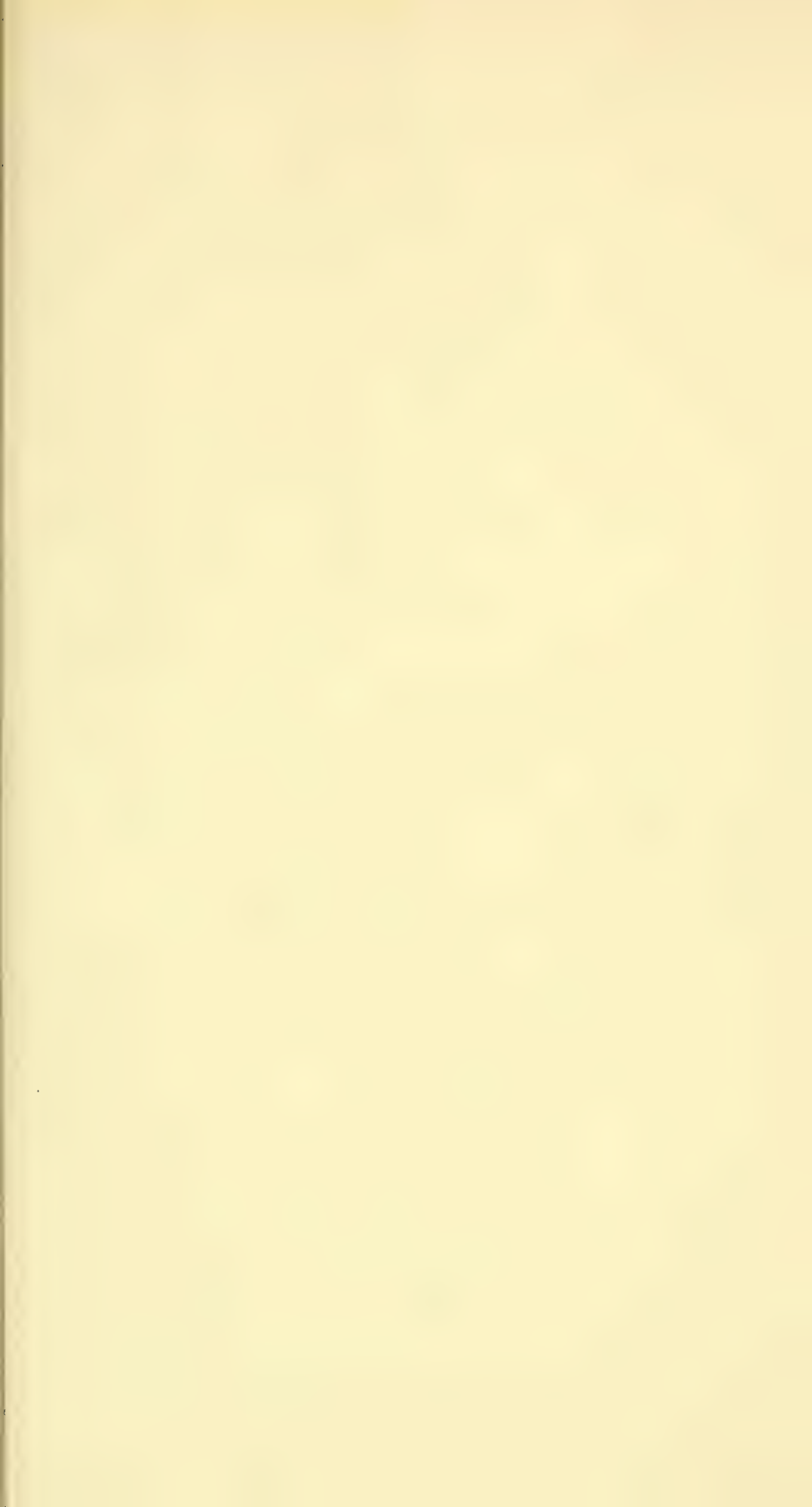
proboscis black: *antennæ* pale yellowish: *occiput* with very short, greenish-yellow hair: *thorax* with two distinct obsolete lines: *wings* reddish-brown: *feet* yellowish: *thighs* dark chesnut at base: *tergum* and *venter* ♀ dark chesnut, polished, the posterior margins of the segments whitish, and slightly hairy; ♂ pale testaceous, with short hair.

OBSERVATIONS.

This is the only species yet known to inhabit North America. It was brought from Arkansaw by Mr. Thomas Nuttall.

The upper figure exhibits the appearance of the male, and the lower that of the female.

PLATE XXXIII.



HETEROMYIA.

ARTIFICIAL CHARACTER.

Antennæ porrect, filiform, fourteen jointed; five terminal joints elongated; palpi exserted, a little arcuated, four jointed; basal joint shortest, a little contracted in the middle; ocelli none; eyes reniform; posterior feet much elongated, slender, and with a single nail at tip; anterior pair with somewhat elongated coxæ, and much dilated femora, armed with a series of short spines on the anterior edge, on which the arcuated tibia closes.

NATURAL CHARACTER.

Body moderately slender; head small, rounded, flattened before; antennæ in the middle of the face; first joint large, but not long; the eight following joints sub-oval; the five terminal joints long, not dilated, cylindric, each being twice the length of one of the preceding ones; eyes reniform, large, wider beneath, and approaching above; stemmata none; palpi arcuated, four

jointed, first joint shortest, last joint longest; proboscis shorter than the head; thorax sub-globular, convex above, and projecting a little forward acutely before; beneath convex; scutel transverse; wings moderate, somewhat lanceolate; poisers naked; feet unequal; anterior pair with the coxæ somewhat elongated; thighs dilated, and with a series of spines on the lower side; tibiæ arcuated, accurately closing on the inferior surface of the thigh; tarsi moderate; intermediate pair slender, longer than the anterior; third pair longest, slender, the tarsi elongated, terminated by a single long and slender nail.

OBSERVATIONS.

This genus is closely allied to *TANYPUS*, *CHIRONOMUS*, and *CERATOPOGON*, but it differs from them by the remarkable conformation of the anterior and posterior feet.

PLATE XXXV.

HETEROMYIA FASCIATA.

SPECIFIC CHARACTER.

Wings hyaline, trifasciate with dusky.

DESCRIPTION.

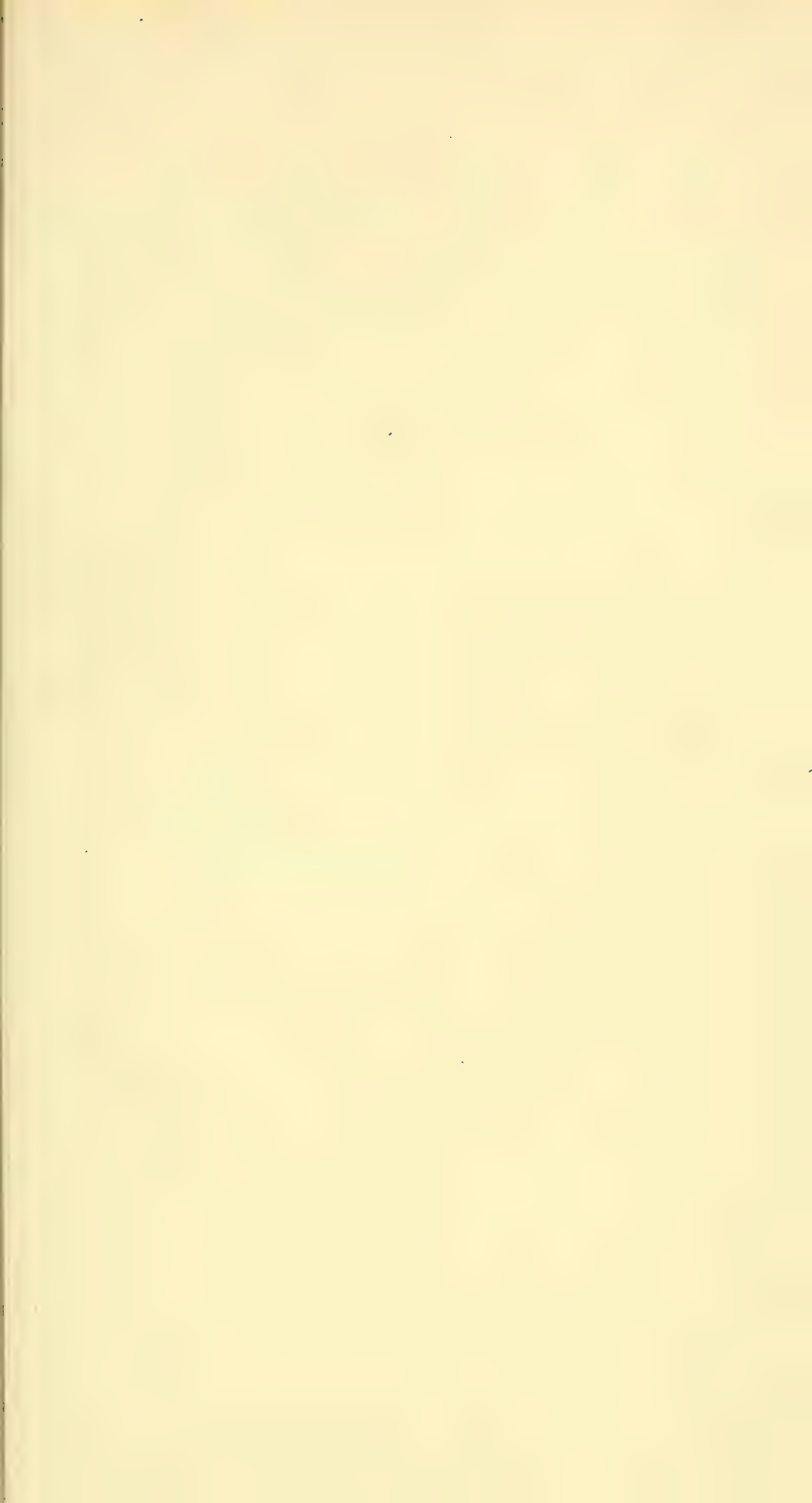
Body testaceous: *thorax* with a black disk: *wings* with three equidistant bands, the two exterior ones somewhat confluent: *posterior thighs* a little dilated towards the tip: *abdomen* with a silvery sericeous reflection; ♂ cylindrical, ♀ dilated towards the tip.

Variety, *a*. Thorax entirely testaceous.

OBSERVATIONS.

The manners and habits of this insect are unknown, though it is of rather frequent occurrence.







LYS. PLANTARIS.



SPHYRACEPHALA.

ESSENTIAL CHARACTER.

Head extended each side in a process which is oculiferous at tip; antennæ inserted on the front, third joint rounded, compressed, setigerous at tip.

NATURAL CHARACTER.

Head subtriangular; eyes pedunculated, peduncles very short, robust; stemmata approximate; antennæ distant, robust, short, nearly parallel to the peduncles, three-jointed; first joint very short, almost concealed; second joint obconic, ciliated at tip; third joint orbicular, setigerous at tip; proboscis bilabiated; palpi elevated, conic; metathorax with a conic spine each side beneath the wings; scutellum two-spined; poisers naked; wings incumbent; feet moderate; anterior thighs dilated; anterior tibiae a little arcuated.

PLATE 52.

OBSERVATIONS.

Two genera of dipterous insects have already been constituted. in which the eyes are pedunculated, or situated at the extremity of elongated, immovable processes of the head: these are *DIOPSIS* of Linneus, and *ACHIAS* of Fabricius. The present genus differs from the former, however, in not having the antennæ situated on the peduncles of the eyes, but on the front, as in *ACHIAS*. It agrees with the former in the terminal origin of the seta of the antennæ, and in the rotundity of the third joint of those organs, as well as in the armature of the scutellum and lateral part of the trunk. In the little known genus *ACHIAS*, we are informed the terminal joint of the antennæ is elongated, cylindrical, and setigerous at base, and that its scutellum is emarginate. It is therefore obvious, that the genus under consideration must be placed between *DIOPSIS* and *ACHIAS*; and that notwithstanding the brevity of the processes of the head, and the frontal origin of the antennæ, it appears to be more intimately allied to the preceding.

PLATE 52.

Sphyracephala is compounded of the words *Σφυρα*, *malleus*, and *κέφαλη*, *caput*, in allusion to the form of the head.

SPHYRACEPHALA BREVICORNIS.

SPECIFIC CHARACTER.

Dusky; wings bifasciate, with brown; scutel, spines, and feet yellowish.

SYNONYM.

DIOPSIS BREVICORNIS. *Nobis. Journ. Acad. Nat. Sciences*, vol. i. p. 23.

DESCRIPTION.

Head pale rufous, vertex and each side before the eyes dusky; peduncles of the eyes not longer than the distance between their bases, a distinct seta on the superior part of the peduncle near the tip, and another each side of the vertex above the antennæ, rather larger than the seta

PLATE 52.

of the antennæ: stemmata situated on a very slight elevation: *trunk* with the lateral spines conic, blackish: *scutel*, spines cylindric, setigerous at tip: *wings* hyaline, a band behind the middle, and a semiband before the middle, brown; *poisers* white: *abdomen* black, immaculate: *feet* yellowish; *anterior thighs* very thick rufous, blackish above and beneath.

OBSERVATIONS.

This insect is very rare in Pennsylvania; a few years since, I obtained a single individual in the month of May; it had alighted on a leaf of the skunk cabbage, near the Wissahickon creek, a few miles from this city. During my subsequent excursions in pursuit of insects, I had never the good fortune to meet with another specimen, until the autumn of 1819, when with Major Long's party on the Missouri, near the cantonment of the party, on the river shore was a considerable body of rock, on which I was frequently occupied in hunting for organic reliquiæ; here, amongst other interesting objects, I had the satisfaction to find the present insect in considerable numbers, lodged, for protection

against the high winds and cool temperature,
in small crevices of the rock.

The plate exhibits two views. The line
shows the natural length; and a wing is figured
below.

PLATE 52.

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[illegible]

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In the above enumeration, asterisks are prefixed to such species as have been first described by the author.

END OF VOL. I.

1. *Journal of the American Medical Association*, 1997; 277: 1039-1043.

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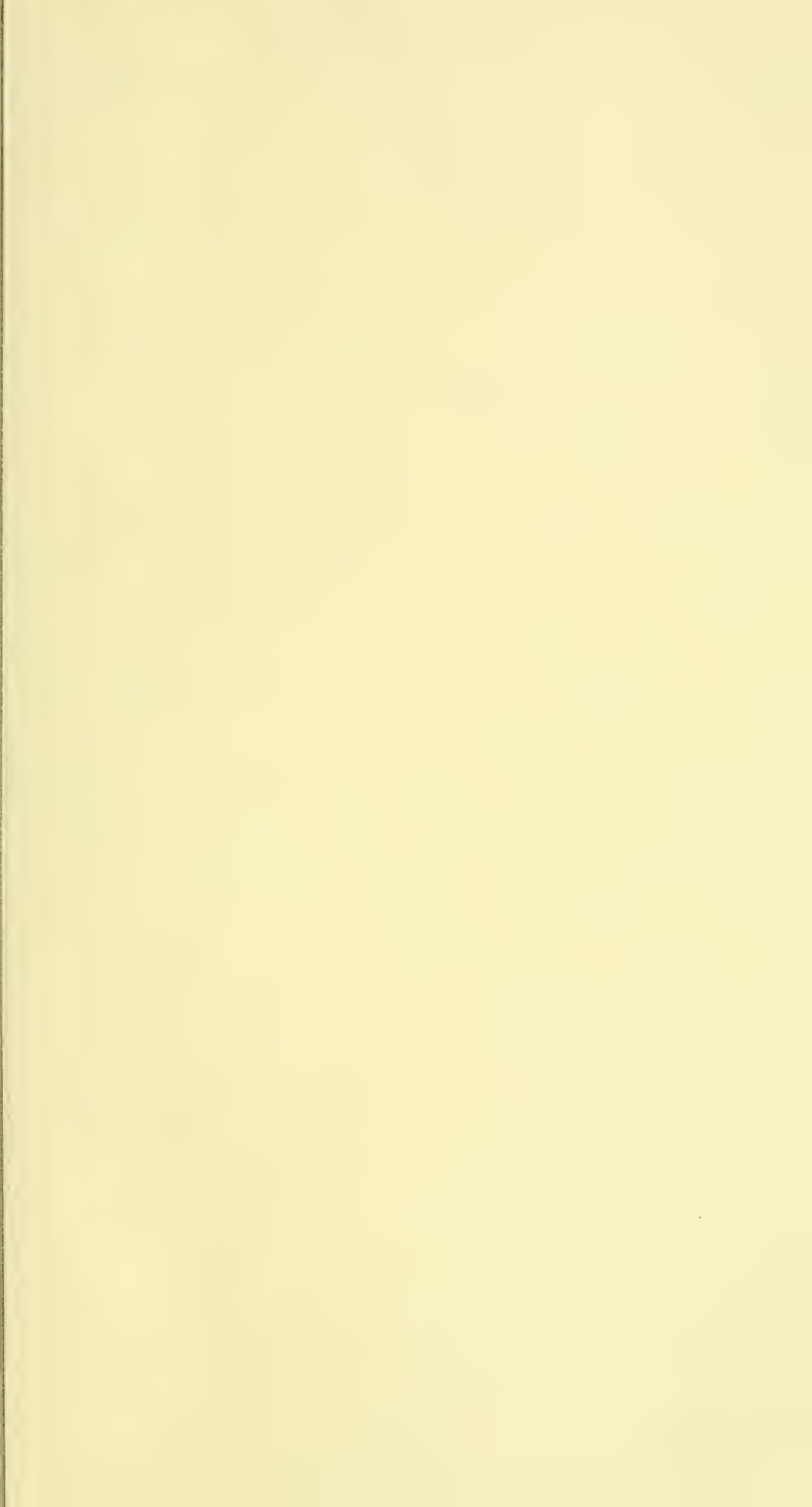
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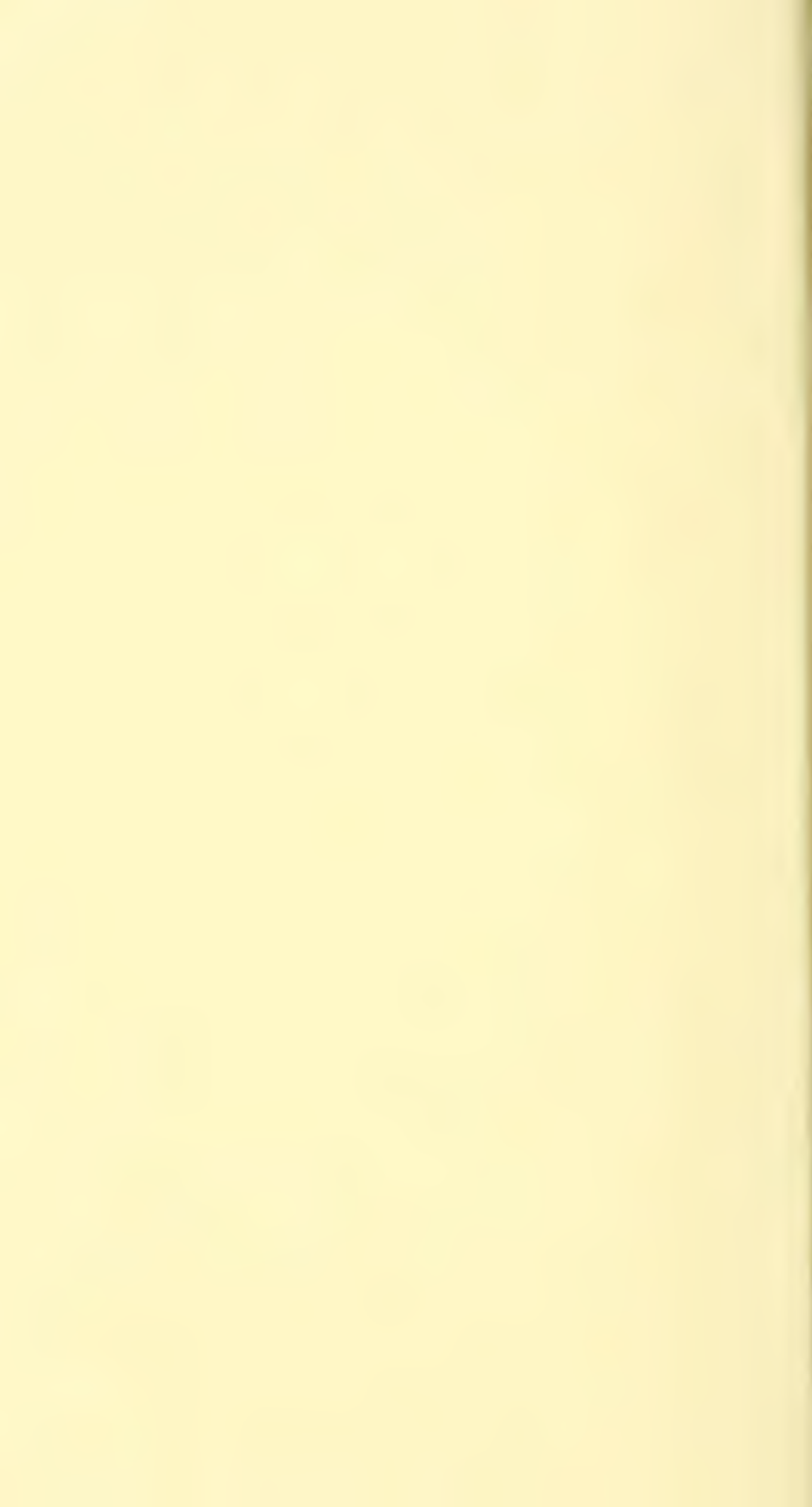
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END OF VOL. III.







TYPE GOD
TWIN BOOKBINDERY
HAND BOUND BY

HAND BOUND BY
TALIN BOOKBINDERY
CAPE COD



